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(54) Title: SUBSTITUTED AZOLE DERIVATIVES AS THERAPEUTIC AGENTS

(57) Abstract: This invention provides azoles which may be useful as inhibitors of protein tyrosine phosphatases (PTPases). The present invention provides compounds of Formula (I), methods of their preparation, pharmaceutical compositions comprising the compounds and their use in treating human or animal disorders. The compounds of the invention may be useful as inhibitors of protein tyrosine phosphatases and thus can be useful for the management, treatment, control and adjunct treatment of diseases mediated by PTPase activity. Such diseases include Type I diabetes, Type II diabetes.

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SUBSTITUTED AZOLE DERIVATIVES AS THERAPEUTIC AGENTS

Statement of Related Application

The present application claims priority under 35 USC 119 from US Provisional Application Serial No. 60/446,977, filed February 12, 2003, the disclosure of which is incorporated by reference.

Field of the Invention

This invention relates to compounds which may be inhibitors of protein tyrosine phosphatases (PTPases), which can be useful for the management, treatment, control, or adjunct treatment of diseases caused by over-activity of PTPases.

Background of the Invention

The process of protein phosphorylation is now recognized as central to the fundamental processes of cellular signal transduction. Alterations in protein phosphorylation, may therefore constitute either a physiological or pathological change in an *in vivo* system. Protein de-phosphorylation, mediated by phosphatases, is also central to certain signal transduction processes.

The two major classes of phosphatases are (a) protein serine/threonine phosphatases (PSTPases), which catalyze the dephosphorylation of serine and/or threonine residues on proteins or peptides; and (b) the protein tyrosine phosphatases (PTPases), which catalyze the dephosphorylation of tyrosine residues on proteins and/or peptides. A third class of phosphatases is the dual specificity phosphatases, or DSP's, which possess the ability to act both as PTPases and as PSTPases.

Among the PTPases there exist two important families, the intracellular PTPases, and the transmembrane PTPases. The intracellular PTPases include PTP1B, STEP, PTPD1, PTPD2, PTPMEG1, T-cell PTPase, PTPH1, FAP-1/BAS, PTP1D, and PTP1C. The transmembrane PTPases include LAR, CD45, PTPα, PTPβ, PTPδ, PTPε, PTPξ, PTPκ, PTPμ, PTPσ, HePTP, SAP-1, and PTP-U2. The dual – specificity phosphatases include KAP, cdc25, MAPK phosphatase, PAC-1, and rVH6.

The PTPases, especially PTP1B, are implicated in insulin insensitivity characteristic of type II diabetes (Kennedy, B.P.; Ramachandran, C. *Biochem. Pharm.* **2000**, *60*, 877-883). The PTPases, notably CD45 and HePTP, are also implicated in immune system function, and in particular T-cell function. Certain PTPases, notably TC-PTP, DEP-1, SAP-1, and CDC25, are also implicated in certain cancers. Certain PTPases, notably the bone PTPase OST-PTP, are implicated in osteoporosis. PTPases are implicated in mediating the actions of somatostatin on target cells, in particular the secretion of hormone and/or growth factor secretion.

Thus, there is a need for agents which inhibit the action of protein tyrosine phosphatases. Such agents would be useful for the treatment of Type I diabetes, Type II diabetes, immune dysfunction, AIDS, autoimmunity, glucose intolerance, obesity, cancer, psoriasis, allergic diseases, infectious diseases, inflammatory diseases, diseases involving the modulated synthesis of growth hormone or the modulated synthesis of growth factors or cytokines which affect the production of growth hormone, or Alzheimer's disease.

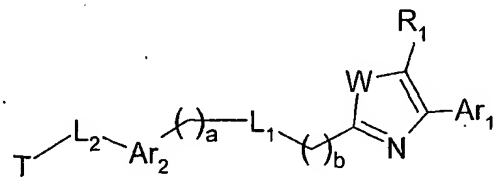
Summary of the Invention

This invention provides azoles which are useful as inhibitors of PTPases. In an embodiment, the present invention provides compounds of Formula (I) as depicted below, methods of their preparation, pharmaceutical compositions comprising the compounds and their use in treating human or animal disorders. The compounds of the invention are useful as inhibitors of protein tyrosine phosphatases and thus are useful for the management, treatment, control and adjunct treatment of diseases mediated by PTPase activity. Such diseases include Type I diabetes, Type II diabetes, immune dysfunction, AIDS, autoimmunity, glucose intolerance, obesity, cancer, psoriasis, allergic diseases, infectious diseases, inflammatory diseases, diseases involving the modulated synthesis of growth hormone or the modulated synthesis of growth factors or cytokines which affect the production of growth hormone, or Alzheimer's disease.

Detailed Description of the Invention

In a first aspect, the present invention provides azole inhibitors of protein tyrosine phosphatases (PTPases) which can be useful for the management and treatment of disease caused by PTPases.

In a second aspect, the present invention provides compounds of Formula (I):



(I)

wherein a and b are, independently, equal to 0, 1, or 2, wherein the values of 0, 1 , and 2 represent a direct bond , $-CH_2-$, and $-CH_2CH_2-$, respectively, and wherein the $-CH_2-$ and –

said substituent group(s) comprise: -alkyl, -aryl, -alkylene-aryl, -arylene-alkyl, -alkylene-arylene-alkyl, -O-alkyl, -O-aryl, and –hydroxyl. In an embodiment, a and b are equal to 0.

W comprises –O-, -S-, or –N(R_2)-,

wherein

R_2 comprises

a) -hydrogen;

b) -alkyl;

c) – L_3-D-G

d) –L_3-D-alkyl:

e) – L_3-D-aryl;

f) – L_3-D-heteroaryl;

g) – L_3-D-cycloalkyl;

h) – L_3-D-heterocyclyl;

i) – L_3-D-arylene-alkyl;

j) – L_3-D-alkylene-arylene-alkyl; and

k) – L_3-D-alkylene-aryl;

l) –L_3-D-alkyl-G;

m) – L_3-D-aryl-G;

n) – L_3-D-heteroaryl-G;

o) – L_3-D-cycloalkyl-G;

p) – L_3-D-heterocyclyl-G;

q) – L_3-D-arylene-alkyl-G;

r) – L_3-D-alkylene-arylene-alkyl-G; or

s) – L_3-D-alkylene-arylene-G;

wherein

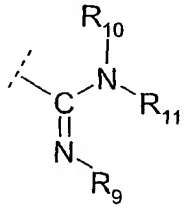
L_3 comprises a direct bond, –alkylene, -alkenylene, or alkynylene;

D comprises a direct bond, –CH_2-, -O-, -N(R_5)-, -C(O)-, -CON(R_5)-, -N(R_6)C(O)-, -N(R_6)CON(R_5)-, -N(R_5)C(O)O-, -OC(O)N(R_5)-, -N(R_5)SO_2-, -SO_2N(R_5)-, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, -S(O_2)-, or -N(R_5)SO_2N(R_6)-, -N=N-, or -N(R_5)-N(R_6)-;

wherein

R_5 and R_6 independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl; and

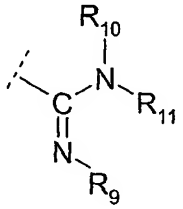
G comprises hydrogen, –CN, $-SO_3H$, $-P(O)(OH)_2$, $-P(O)(O\text{-alkyl})(OH)$, –



CO_2H, $-CO_2$-alkyl, an acid isostere, $-NR_7R_8$, or ;

wherein

R_7 and R_8 independently comprise: hydrogen, -alkyl, $-L_4$-E-alkyl, $-L_4$-E-aryl, -C(O)-alkyl, -C(O)-aryl, $-SO_2$-alkyl, $-SO_2$-aryl, or



;

wherein

R_9, R_{10}, and R_{11} independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, and -alkylene-arylene-alkyl;

L_4 comprises a direct bond, –alkylene, -alkenylene , or -alkynylene;

E comprises a direct bond, $–CH_2–$, -O-, $-N(R_{12})-$, -C(O)-, $-CON(R_{12})-$, $-N(R_{12})C(O)-$, $-N(R_{12})CON(R_{13})-$, $-N(R_{12})C(O)O-$, $-OC(O)N(R_{12})-$, $-N(R_{12})SO_2-$, $-SO_2N(R_{12})-$, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, $-S(O_2)-$, $-N(R_{12})SO_2N(R_{13})-$, -N=N-, or $-N(R_{12})-N(R_{13})-$

wherein

R_{12} and R_{13} independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl.

In further embodiments, W comprises –O- or $–N(R_2)-$, wherein R_2 comprises hydrogen, alkyl, or $–L_3$-D-alkylene-aryl, wherein L_3 comprises alkylene, and D comprises $–CO(NR_5)-$, wherein R_5 comprises hydrogen. In other embodiments, W comprises $–N(R_2)-$, wherein R_2 comprises hydrogen.

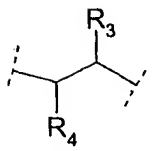
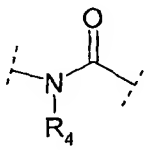
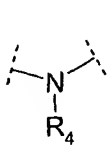
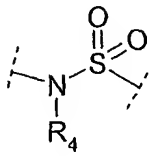
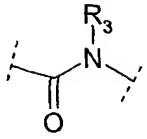
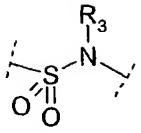
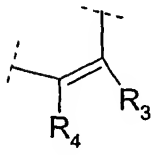
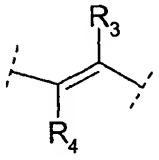
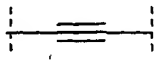
R_1 comprises

a) -hydrogen;

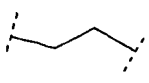
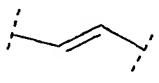
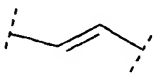
c) –chloro;
d) –bromo;
e) –iodo;
f) –cyano;
g) -alkyl;
h) –aryl;
i) -alkylene-aryl;
j) -heteroaryl;
k) –alkylkene-heteroaryl;
l) –cycloalkyl;
m) –alkylene-cycloalkyl
n) – heterocyclyl; or
o) – alkylene-heterocyclyl;

In another embodiment, R_1 comprises hydrogen or aryl.

L_1 comprises:










, or a direct bond;

wherein R_3 and R_4 independently comprise: hydrogen, chloro, fluoro, bromo, alkyl, aryl, -alkylene-aryl, -cycloalkyl, -alkylene-cycloalkyl, -heterocyclyl, -alkylene-heterocyclyl, or -alkynylene. In another embodiment, L_1 comprises


or

. In another embodiment, L_1 comprises

.

Ar_1 comprises an aryl, heteroaryl, fused cycloalkylaryl, fused cycloalkylheteroaryl, fused heterocyclylaryl, or fused heterocyclylheteroaryl group optionally substituted 1 to 7 times. In an embodiment, Ar_1 comprises a mono- or bicyclic aryl group optionally substituted

1 to 7 times. In another embodiment, Ar_1 comprises a phenyl or naphthyl group optionally having 1 to 5 substituents, wherein the substituents independently comprise:

a) -fluoro;
b) -chloro;
c) -bromo;
d) -iodo;
e) -cyano;
f) -nitro;
g) -perfluoroalkyl;
h) -J-R_{14};
i) -alkyl;
j) -aryl;
k) -heteroaryl;
l) -heterocyclyl;
m) -cycloalkyl;
n) -L_5-aryl;
o) - L_5-arylene-aryl;
p) - L_5-arylene-alkyl;
q) -arylene-alkyl;
r) -arylene-arylene-alkyl;
s) -J-alkyl;
t) -J-aryl;
u) -J-alkylene-aryl;
v) -J-arylene-alkyl;
w) -J-alkylene-arylene-aryl;
x) -J-arylene-arylene-aryl;
y) -J-alkylene-arylene-alkyl;
z) - L_5-J-alkylene-aryl;
aa) -arylene-J-alkyl;
bb) - L_5-J-aryl;
cc) - L_5-J-heteroaryl;
dd) - L_5-J-cycloalkyl;
ee) - L_5-J-heterocyclyl;
ff) - L_5-J-arylene-alkyl;
gg) - L_5-J-alkylene-arylene-alkyl;
hh) - L_5-J-alkyl;

jj) -arylene-J-R_{14}; or

kk) -hydrogen;

wherein L_5 comprises a direct bond, –alkylene, -alkenylene, or -alkynylene; and wherein J comprises a direct bond, $–CH_2$-, -O-, -N(R_{15})-, -C(O)-, -CON(R_{15})-, -N(R_{15})C(O)-, -N(R_{15})CON(R_{16})-, -N(R_{15})C(O)O-, -OC(O)N(R_{15})-, -N(R_{15})SO_2-, -SO_2N(R_{15})-, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, -S(O_2)-, -N(R_{15})SO_2N(R_{18})-, -N=N-, or -N(R_{15})-N(R_{16})- , and wherein R_{14}, R_{15}, and R_{16} independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl.

In another embodiment, Ar_1 is a phenyl group optionally substituted 1 to 5 times, wherein the substituents independently comprise:

a) -fluoro;

b) -chloro;

c) -bromo;

d) -iodo;

e) -cyano;

f) –nitro; or

g) -aryl.

In another embodiment, Ar_1 comprises a phenyl group substituted 1 to 5 times, wherein the substituents comprise: -chloro or -fluoro.

Ar_2 comprises an arylene, heteroarylene, fused arylcycloalkylene, fused cycloalkylarylene, fused cycloalkylheteroarylene, fused heterocyclylarylene, or fused heterocyclylheteroarylene group optionally substituted 1 to 7 times. Ar_2 may also be taken in combination with R_4 to constitute a fused arylcycloalkylene, fused cycloalkylarylene, fused cycloalkylheteroarylene, fused heterocyclylarylene, or fused heterocyclylheteroarylene group, optionally substituted 1 to 7 times. In an embodiment, Ar_2 comprises an arylene group optionally substituted 1 to 7 times. In another embodiment, Ar_2 comprises a phenylene or naphthylene group optionally having 1 to 5 substituents, wherein the substituents independently comprise:

a) -fluoro;

b) -chloro;

c) -bromo;

d) -iodo;

e) -cyano;

g) -perfluoroalkyl;
h) -Q-R_{17};
i) -alkyl;
j) -aryl;
k) -heteroaryl;
l) -heterocyclyl;
m) -cycloalkyl;
n) - L_6-aryl;
o) - L_6-arylene-aryl;
p) - L_6-arylene-alkyl;
q) -arylene-alkyl;
r) -arylene-arylene-alkyl;
s) -Q-alkyl;
t) -Q-aryl;
u) -Q-alkylene-aryl;
v) -Q-arylene-alkyl;
w) -Q-alkylene-arylene-aryl;
x) -Q-arylene-arylene-aryl;
y) -Q-alkylene-arylene-alkyl;
z) - L_6-Q-alkylene-aryl;
aa) -arylene-Q-alkyl;
bb) - L_6-Q-aryl;
cc) - L_6-Q-heteroaryl;
dd) - L_6-Q-cycloalkyl;
ee) - L_6-Q-heterocyclyl;
ff) - L_6-Q-arylene-alkyl;
gg) - L_6-Q-alkylene-arylene-alkyl;
hh) - L_6-Q-alkyl;
ii) - L_6-Q-alkylene-aryl-R_{17};
jj) - L_6-Q-alkylene-heteroaryl-R_{17};
kk) -arylene-Q-alkylene-R_{17};
ll) -heteroarylene-Q-alkylene-R_{17};
mm) - L_6-Q-aryl-R_{17};
nn) - L_6-Q-heteroarylene-R_{17};
oo) - L_6-Q-heteroaryl-R_{17};
pp) – L_6-Q-cycloalkyl-R_{17};
qq) – L_6-Q-heterocyclyl-R_{17};

rr) – L_6-Q-arylene-alkyl-R_{17};

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vv) – L_6-Q-alkylene-cycloalkylene-alkyl-R_{17};

ww) – L_6-Q-alkylene-heterocyclylene-alkyl-R_{17};

xx) – L_6-Q-alkyl-R_{17};

yy) – L_6-Q-R_{17};

zz) -arylene-Q-R_{17};

aaa) -heteroarylene-Q-R_{17};

bbb) -heterocyclylene-Q-R_{17};

ccc) -Q-alkylene-R_{17};

ddd) -Q-arylene-R_{17};

eee) -Q-heteroarylene-R_{17};

fff) -Q-alkylene-arylene-R_{17};

ggg) -Q-alkylene-heteroarylene-R_{17};

hhh) -Q-heteroarylene-alkylene- R_{17};

iii) -Q-arylene-alkylene- R_{17};

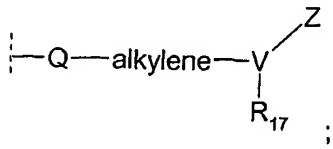
jjj) -Q-cycloalkylene-alkylene- R_{17};

kkk) -Q-heterocyclylene-alkylene- R_{17}

lll) -Q-alkylene-arylene-alkyl- R_{17};

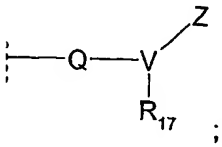
mmm) -Q-alkylene-heteroarylene-alkyl- R_{17};

lll)



;

mmm)



; or

nnn) –hydrogen

wherein

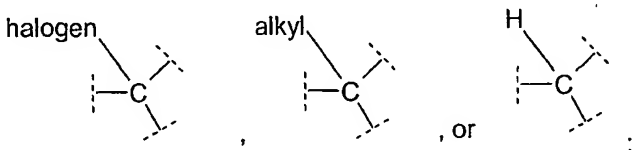
L_6 comprises a direct bond, –alkylene, -alkenylene, or -alkynylene;

Q comprises a direct bond, $-CH_2-$, -O-, $-N(R_{18})-$, -C(O)-, $-CON(R_{18})-$, $-N(R_{18})C(O)-$, $-N(R_{18})CON(R_{19})-$, $-N(R_{18})C(O)O-$, $-OC(O)N(R_{18})-$, $-N(R_{18})SO_2-$, $-SO_2N(R_{18})-$, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, $-S(O_2)-$, $-N(R_{18})SO_2N(R_{19})-$, -N=N-, or $-N(R_{18})-N(R_{19})-$;

wherein

R_{18} and R_{19} independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl;

V comprises



;

Z comprises hydrogen, -alkylene-aryl, -alkyl, -aryl, -heteroaryl, -heterocyclyl, -cycloalkyl, -alkylene-heteroaryl, or -alkylene-cycloalkyl;

R_{17} comprises $-SO_3H$, $-P(O)(OH)_2$, -P(O)(O-alkyl)(OH), $-CO_2H$, $-CO_2$-alkyl, an acid isostere, hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, acyloxy-alkylene-, or -alkylene-arylene-alkyl.

In another embodiment, Ar_2 comprises a phenyl group or naphthyl group optionally substituted 1 to 5 times, wherein the substituents independently comprise:

a) -fluoro;
b) -chloro;
c) -bromo;
d) -iodo;
h) $-Q-R_{17}$;
i) -alkyl;
j) -aryl;
q) -arylene-alkyl;
s) -Q-alkyl; or
t) -arylene-Q-alkyl;

wherein

Q comprises $-CH_2-$, -O-, -C(O)-, or -C(O)-O-, and

R_{17} comprises -hydrogen, -alkyl, -aryl, $-CO_2H$, or an acid isostere.

In another embodiment, Ar_2 comprises a phenyl group substituted 1 to 5 times, wherein the substituents independently comprise:

a) -fluoro;

b) -chloro;

c) -bromo;

d) -iodo;

e) $-Q-R_{17}$;

f) -alkyl;

g) -phenyl;

h) -phenylene-alkyl;

i) -Q-alkyl; or

j) -phenylene-Q-alkyl;

wherein

Q comprises $-CH_2-$, -O-, -C(O)-, or -C(O)-O-, and

R_{17} comprises -hydrogen, -alkyl, –phenyl, or $-CO_2H$.

L_2 comprises: $-CH_2-$, -O-, alkylene, alkenylene, alkynelene, -K-alkylene-, -alkylene-K-, -alkylene-K-alkylene-, -alkenylene-K-alkylene-, -alkylene-K-alkenylene-, -arylene-K-alkylene-, alkylene-K-arylene, -heteroarylene-K-alkylene-, alkylene-K-heteroarylene, -arylene-K-, -K-arylene-, or -heteroarylene-K-, -K-heteroarylene,

wherein K comprises a direct bond, $-N(R_{20})-$, -C(O)-, $-CON(R_{20})-$, $-N(R_{20})C(O)-$, $-N(R_{20})CON(R_{21})-$, $-N(R_{20})C(O)O-$, $-OC(O)N(R_{20})-$, $-N(R_{20})SO_2-$, $-SO_2N(R_{20})-$, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, $-S(O_2)-$, $-N(R_{20})SO_2N(R_{21})-$, -N=N-, or $-N(R_{20})-N(R_{21})-$; $-N(R_{20})-$, -C(O)-, $-CON(R_{20})-$, $-N(R_{20})C(O)-$, $-N(R_{20})CON(R_{21})-$, $-N(R_{20})C(O)O-$, $-OC(O)N(R_{20})-$, $-N(R_{20})SO_2-$, $-SO_2N(R_{20})-$, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, $-S(O_2)-$, $-N(R_{20})SO_2N(R_{21})-$, -N=N-, $-N(R_{20})-N(R_{21})-$ or a direct bond, wherein R_{20} and R_{21} independently comprise: -hydrogen, -alkyl, -aryl, -arylene- alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl.

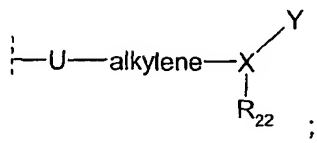
In an embodiment, L_2 comprises -O-, -O-alkylene-, -alkylene-O, or a direct bond. In another embodiment, L_2 comprises -O-alkylene- or a direct bond.

T comprises selected from the group consisting of: hydrogen, alkyl, cycloalkyl, heterocyclyl, aryl, heteroaryl, fused cycloalkylaryl, fused cycloalkylheteroaryl, fused heterocyclylaryl, or fused heterocyclylheteroaryl group optionally substituted 1 to 7 times. In

to 7 times. In further embodiments, T comprises an aryl group optionally having 1 to 5 substituents, wherein the substituents independently comprise:

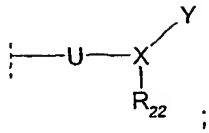
a) -fluoro;
b) -chloro;
c) -bromo;
d) -iodo;
e) -cyano;
f) -nitro;
g) -perfluoroalkyl;
h) -U-R_{22};
i) -alkyl;
j) -aryl;
k) -heteroaryl;
l) -heterocyclyl;
m) -cycloalkyl;
n) -L_7-aryl;
o) – L_7-arylene-aryl;
p) – L_7-arylene-alkyl;
q) -arylene-alkyl;
r) -arylene-arylene-alkyl;
s) -U-alkyl;
t) -U-aryl;
u) -U-alkylene-aryl;
v) -U-arylene-alkyl;
w) -U-alkylene-arylene-aryl;
x) -U-arylene-arylene-aryl;
y) -U-alkylene-arylene-alkyl;
z) – L_7-U-alkylene-aryl;
aa) -arylene-U-alkyl;
bb) – L_7-U-aryl;
cc) – L_7-U-heteroaryl;
dd) – L_7-U-cycloalkyl;
ee) - L_7-U-heterocyclyl;
ff) - L_7-U-arylene-alkyl;
gg) - L_7-U-alkylene-arylene-alkyl;
hh) - L_7-U-alkyl;

jj) - L_7-U-alkylene-heteroaryl- R_{22};
kk) -arylene-U-alkylene- R_{22};
ll) -heteroarylene-U-alkylene- R_{22};
mm) L_7-U-aryl- R_{22};
nn) - L_7-U-heteroarylene- R_{22};
oo) - L_7-U-heteroaryl- R_{22};
pp) - L_7-U-cycloalkyl- R_{22};
qq) – L_7-U-heterocyclyl- R_{22};
rr) – L_7-U-arylene-alkyl- R_{22};
ss) – L_7-U-heteroarylene-alkyl- R_{22};
tt) – L_7-U-alkylene-arylene-alkyl- R_{22};
uu) – L_7-U-alkylene-heteroarylene-alkyl- R_{22};
vv) – L_7-Q-alkylene-cycloalkylene-alkyl-R_{22};
ww) – L_7-Q-alkylene-heterocyclylene-alkyl-R_{22};
xx) – L_7-U-alkyl- R_{22};
yy) – L_7-U- R_{22};
zz) -arylene-U- R_{22};
aaa) -heteroarylene-U- R_{22};
bbb) -heterocyclylene-U- R_{22};
ccc) -U-alkylene- R_{22};
ddd) -U-arylene- R_{22};
eee) -U-heteroarylene- R_{22};
fff) -U-alkylene-arylene- R_{22};
ggg) -U-alkylene-heteroarylene- R_{22};
hhh) -U-heteroarylene-alkylene- R_{22};
iii) -U-arylene-alkylene- R_{22};
jjj) -U-cycloalkylene-alkylene- R_{22};
kkk) -U-heterocyclylene-alkylene- R_{22};
lll) -U-alkylene-arylene-alkyl- R_{22};
mmm) -U-alkylene-heteroarylene-alkyl- R_{22};
nnn)



;

ooo)


; or

ppp) –hydrogen;

wherein

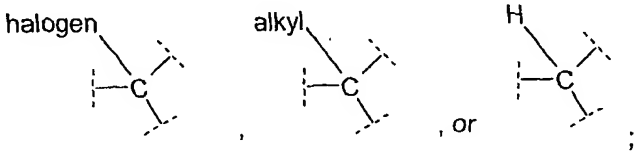
L_7 comprises a direct bond, –alkylene, -alkenylene, or -alkynylene;

U comprises a direct bond, $-CH_2-$, -O-, $-N(R_{23})-$, -C(O)-, $-CON(R_{23})-$, $-N(R_{23})C(O)-$, $-N(R_{23})CON(R_{24})-$, $-N(R_{23})C(O)O-$, $-OC(O)N(R_{23})-$, $-N(R_{23})SO_2-$, $-SO_2N(R_{23})-$, -C(O)-O-, -O-C(O)-, -S-, -S(O)-, $-S(O_2)-$, $-N(R_{23})SO_2N(R_{24})-$, -N=N-, or $-N(R_{23})-N(R_{24})-$;

wherein

R_{23} and R_{24} independently comprise: -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, or -alkylene-arylene-alkyl;

X comprises



, or ;

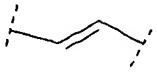
Y comprises hydrogen, -alkylene-aryl, -alkyl, -aryl, -heteroaryl, -heterocyclyl, -cycloalkyl, -alkylene-heteroaryl, or -alkylene-cycloalkyl;

R_{22} comprises $-SO_3H$, $-P(O)(OH)_2$, -P(O)(O-alkyl)(OH), $-CO_2H$, $-CO_2$-alkyl, an acid isostere, -hydrogen, -alkyl, -aryl, -arylene-alkyl, -alkylene-aryl, acyloxy-alkylene- , or -alkylene-arylene-alkyl.

In another embodiment, T comprises an aryl group substituted by -U-alkylene-R_{22}, wherein U comprises -O- or a direct bond, and R_{22} comprises $-CO_2H$ or an acid isostere.

In another embodiment, the present invention provides compounds of Formula (I) wherein

a and b are equal to zero;

L_1 comprises  ;

Ar_2 comprises a phenylene group optionally substituted 1 time with a group comprising: -Q-alkyl, wherein Q is -O-;

L_2 comprises a direct bond, O-alkylene, or an alkynylene; and

T comprises an aryl group substituted with at least one substituent comprising:

a) -U-R_{22};

b) -U-alkylene-arylene-R_{22};

c) -U-alkylene-R_{22};

d) -U-arylene-R_{22};

e) -U-arylene-R_{22} wherein the arylene is substituted with at least one of a halogen, methanesulfonylamino, or trifluoromethanesulfonylamino group.

f) -U-arylene wherein the arylene is substituted with at least one trifluromethanesulfonylamino group;

g) -R_{22}; or

h) -halogen

wherein R_{22} is CO_2H or an acid isotere.

In another embodiment, the present invention provides compounds of Formula (I) wherein

a and b are equal to zero;

R_1 comprises hydrogen

W comprises –N(R_2)-

wherein R_2 comprises alkyl; and

Ar_1 comprises aryl substituted 2 times wherein the substituent groups comprise – chloro.

In another embodiment of the compound of Formula (I), wherein a and b are equal to 0, and R_1 Ar_1, and W are as defined above, the groups T, L_2, Ar_2, and L_1 together comprise: E)-2-(4-methoxyphenyl)vinyl, (E)-2-(3-methoxyphenyl)vinyl, (E)-2-(2-methoxyphenyl)vinyl, (E)-2-(3,4-dimethoxyphenyl)vinyl, (E)-2-(2,3,4-trimethoxyphenyl)vinyl, (E)-2-(4-ethoxyphenyl)vinyl, (E)-2-phenylvinyl, (E)-2-(4-fluorophenyl)vinyl, (E)-2-(4-chlorophenyl)vinyl

(E)-2-(4-bromophenyl)vinyl, (E)-2-(1,1'-biphenyl-4-yl)vinyl, (E)-2-(1-naphthyl)vinyl, (E)-2-(2-naphthyl)vinyl, 9H-fluoren-9-ylidenemethyl, (E)-2-(4'-methoxy-1,1'-biphenyl-4-yl)vinyl, (E)-2-(3'-methoxy-1,1'-biphenyl-4-yl)vinyl, (E)-2-(4-hydroxyphenyl)vinyl, 2-(4-methoxyphenyl)ethyl, (E)-2-(4'-carboxymethyloxy-1,1'-biphenyl-4-yl)vinyl, (E)-2-(4'-(3-methoxycarbonyl-1-propyloxy)-1,1'-biphenyl-4-yl)vinyl, (E)-2-(4'-(3-carboxy-1-proploxy)-1,1'-biphenyl-4-yl)vinyl, (E)-2-(4'-phenoxy-1,1'-biphenyl-4-yl)vinyl, or (E)-2-(4'-benzyloxy-1,1'-biphenyl-4-yl)vinyl.

In another embodiment of the compound of Formula (I), Ar_1 comprises 2,4-dichlorophenyl.

In another embodiment of the compound of Formula (I), W comprises $-N(R_2)-$, wherein R_2 comprises $-L_3$-D-alkylene-arylene-G, wherein L_3 comprises a direct bond or alkylene, D is a direct bond, or -O-, and G comprises –CN, $-SO_3H$, $-P(O)(OH)_2$, -P(O)(O-alkyl)(OH), $-CO_2H$, $-CO_2$-alkyl, or an acid isostere.

In another aspect, the present invention provides a pharmaceutically acceptable salt, solvate, or prodrug of compounds of Formula (I).

In the compounds of Formula (I), the various functional groups represented should be understood to have a point of attachment at the functional group having the hyphen. In other words, in the case of -alkylene-aryl, it should be understood that the point of attachment is the alkylene group; an example would be benzyl. In the case of a group such as –C(O)-NH- alkylene-aryl, the point of attachment is the carbonyl carbon.

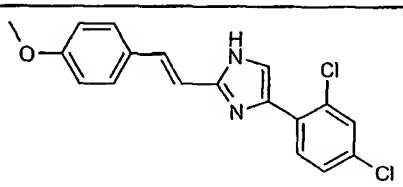
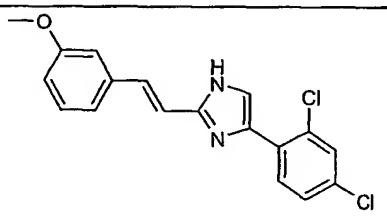
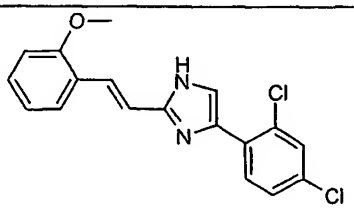
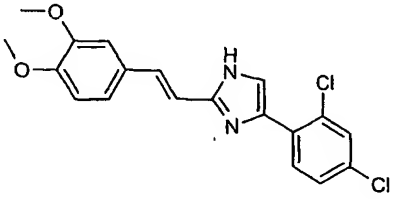
Also included within the scope of the invention are the individual enantiomers of the compounds represented by Formula (I) above as well as any wholly or partially racemic mixtures thereof. The present invention also covers the individual enantiomers of the compounds represented by formula above as mixtures with diastereoisomers thereof in which one or more stereocenters are inverted.

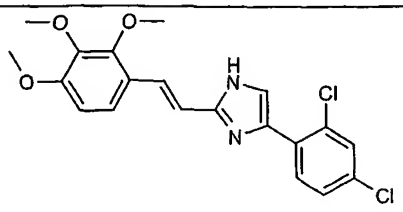
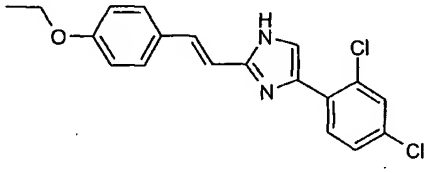
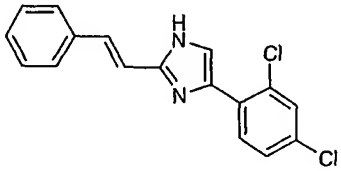
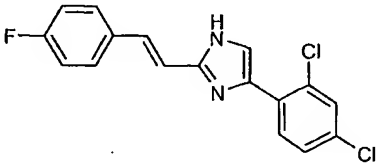
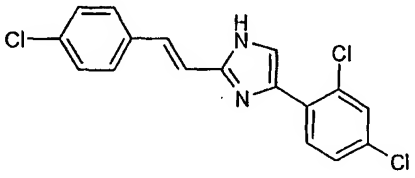
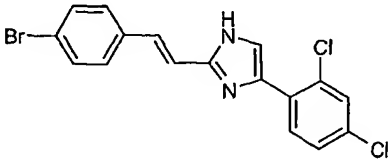
Compounds of the present invention which are currently preferred for their biological activity are listed by name below in Table 1.

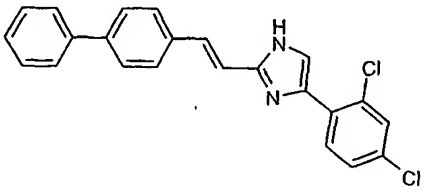
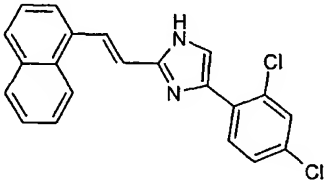
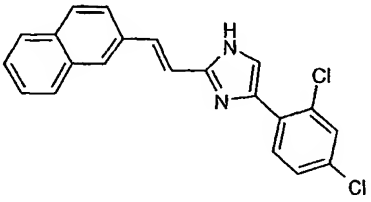
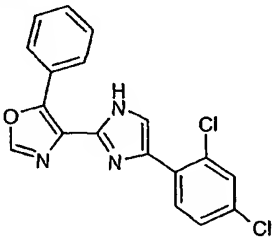
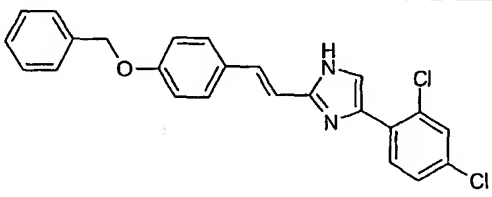
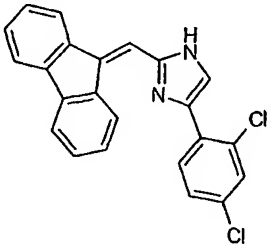
The ability of compounds Formula (I) to potentially treat or inhibit disorders related to insulin resistance or hyperglycemia was established with representative compounds of Formula (I) listed in Table I using a standard primary/secondary assay test procedure that

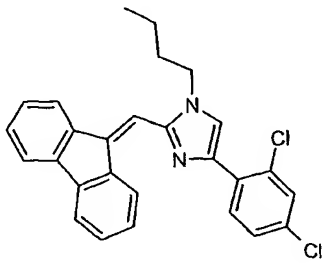
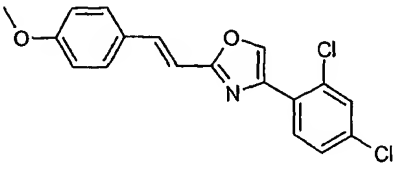
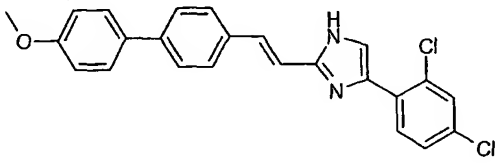
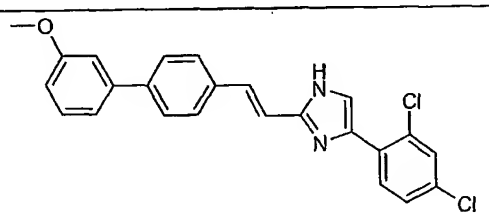
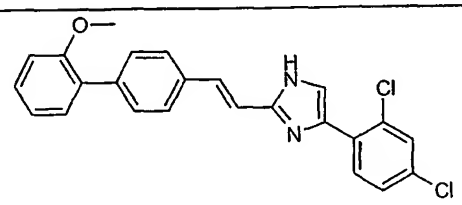
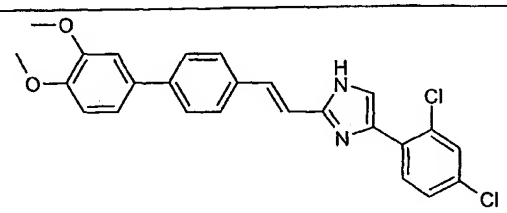
The compounds of this invention can be potentially useful in treating metabolic disorders related to insulin resistance or hyperglycemia, typically associated with obesity or glucose intolerance. The compounds of this invention may therefore be particularly useful in the treatment or inhibition of type II diabetes. The compounds of this invention are also potentially useful in modulating glucose levels in disorders such as type I diabetes.

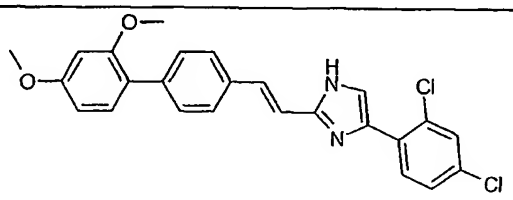
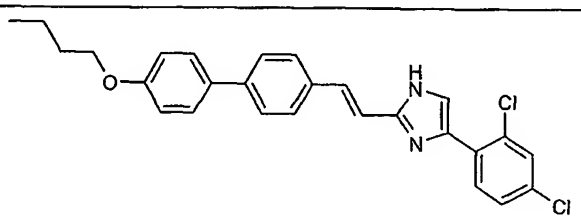
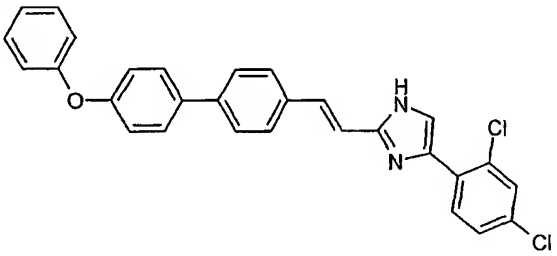
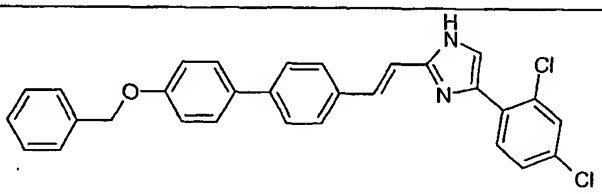
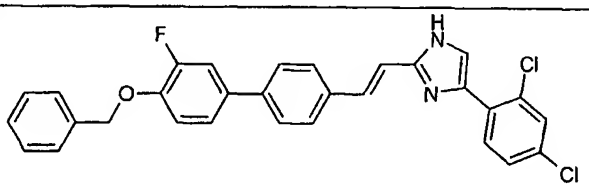
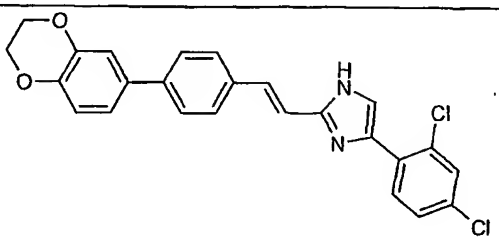
Table 1

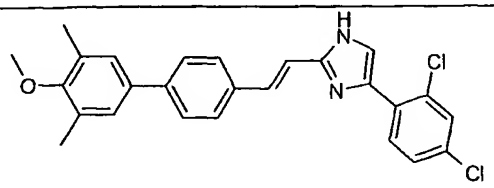
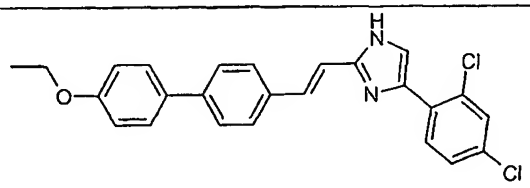
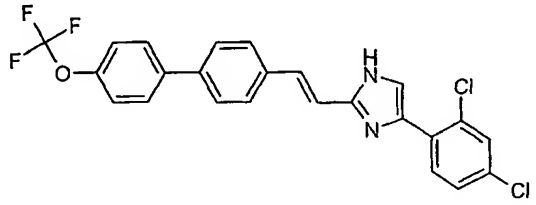
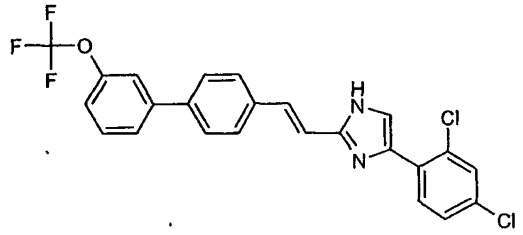
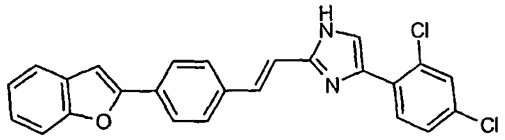
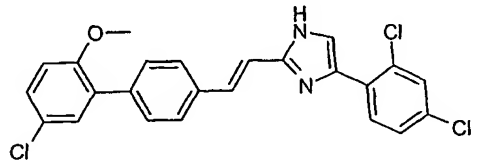
Ex.	Structure	Name
1		4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
2		4-(2,4-dichloro-phenyl)-2-[2-(3-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
3		4-(2,4-dichloro-phenyl)-2-[2-(2-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
4		4-(2,4-dichloro-phenyl)-2-[2-(3,4-dimethoxy-phenyl)-(E)-vinyl]-1H-imidazole

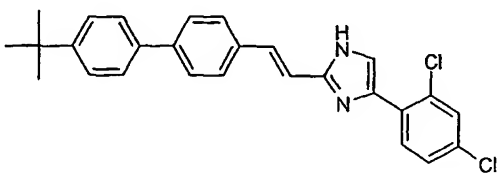
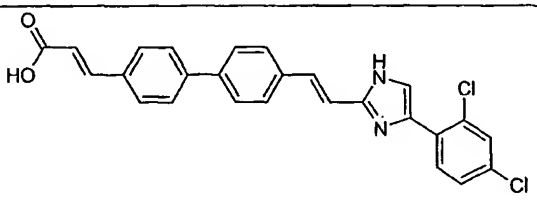
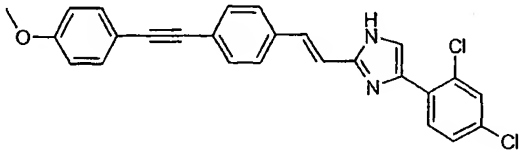
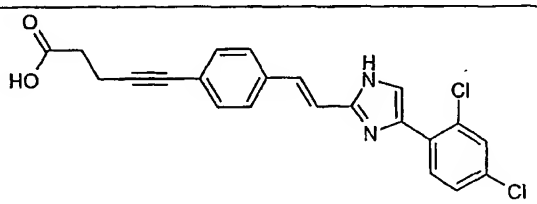
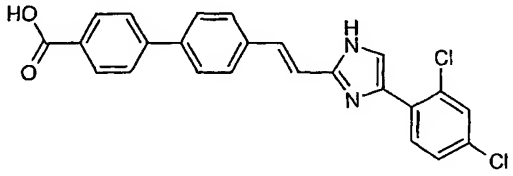
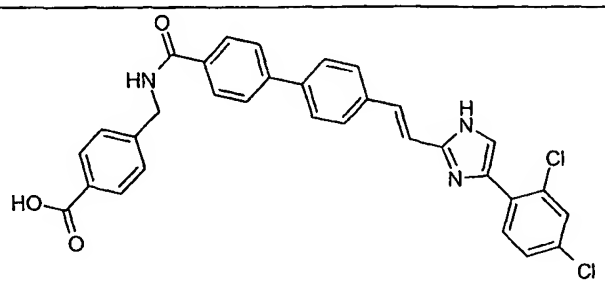
Ex.	Structure	Name
5		4-(2,4-dichloro-phenyl)-2-[2-(2,3,4-trimethoxy-phenyl)-(E)-vinyl]-1H-imidazole
6		4-(2,4-dichloro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-1H-imidazole
7		4-(2,4-dichloro-phenyl)-2-styryl-1H-imidazole
8		4-(2,4-dichloro-phenyl)-2-[2-(4-fluoro-phenyl)-(E)-vinyl]-1H-imidazole
9		2-[2-(4-chloro-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
10		2-[2-(4-bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

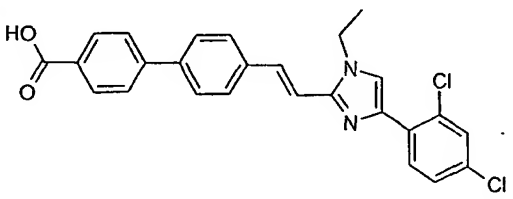
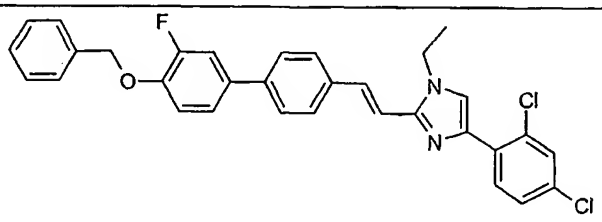
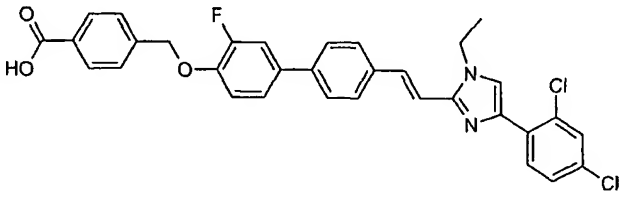
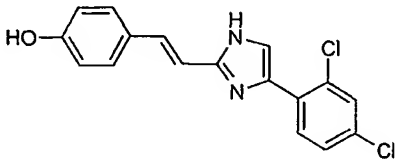
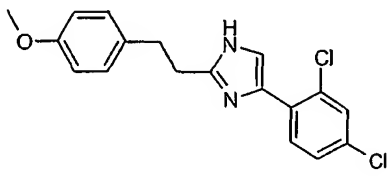
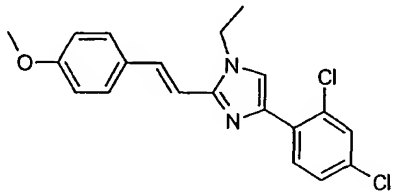
Ex.	Structure	Name
11		2-(2-biphenyl-4-yl-(E)-vinyl)-4-(2,4-dichloro-phenyl)-1H-imidazole
12		4-(2,4-dichloro-phenyl)-2-(2-naphthalen-1-yl-(E)-vinyl)-1H-imidazole
13		4-(2,4-dichloro-phenyl)-2-(2-naphthalen-2-yl-(E)-vinyl)-1H-imidazole
14		4-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-5-phenyl-oxazole
15		2-[2-(4-benzyloxy-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
16		4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole

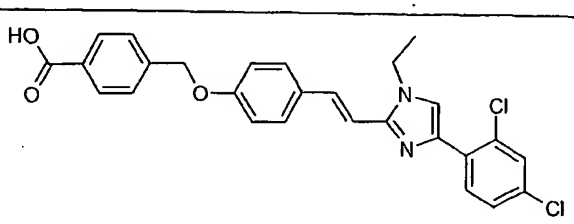
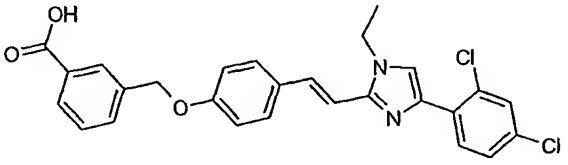
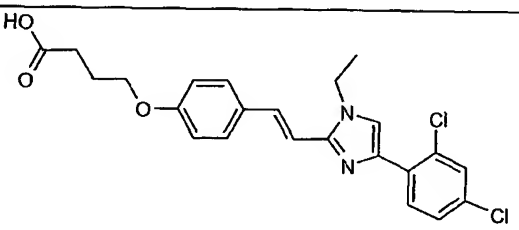
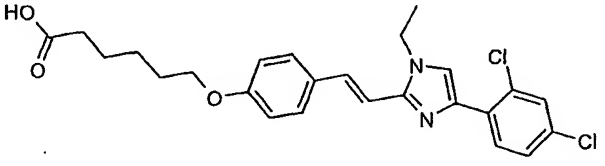
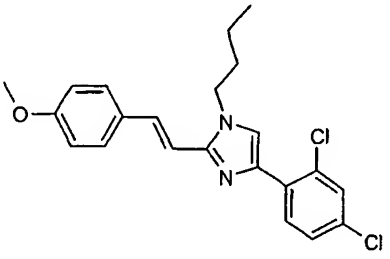
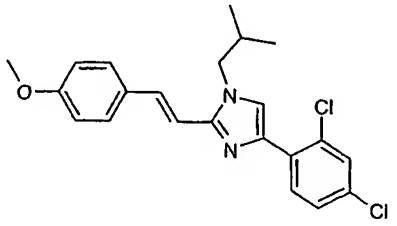
Ex.	Structure	Name
17		1-butyl-4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole
18		4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-oxazole
19		4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
20		4-(2,4-dichloro-phenyl)-2-[2-(3'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
21		4-(2,4-dichloro-phenyl)-2-[2-(2'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
22		4-(2,4-dichloro-phenyl)-2-[2-(3',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

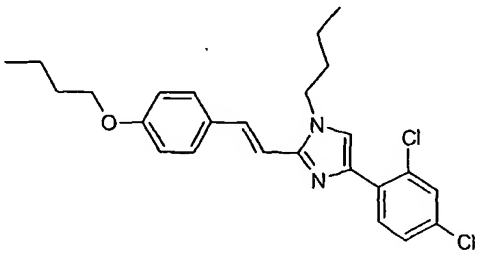
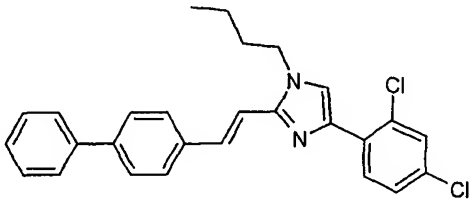
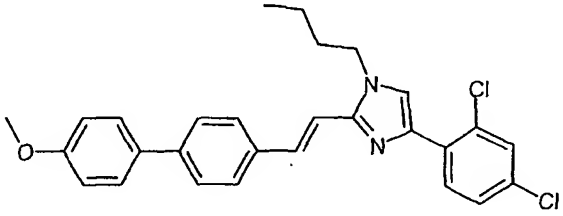
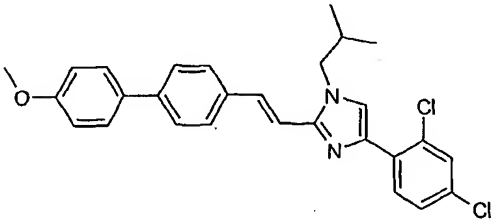
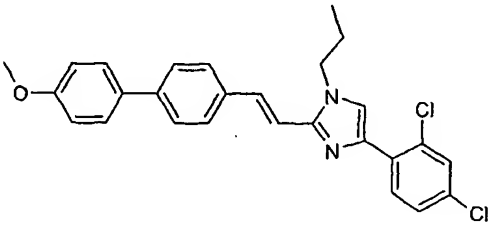
Ex.	Structure	Name
23		4-(2,4-dichloro-phenyl)-2-[2-(2',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
24		2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
25		4-(2,4-dichloro-phenyl)-2-[2-(4'-phenoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
26		2-[2-(4'-benzyloxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
27		2-[2-(4'-benzyloxy-3'-fluoro-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
28		4-(2,4-dichloro-phenyl)-2-{2-[4-(2,3-dihydro-benzo[1,4]dioxin-6-yl)-phenyl]-(E)-vinyl}-1H-imidazole

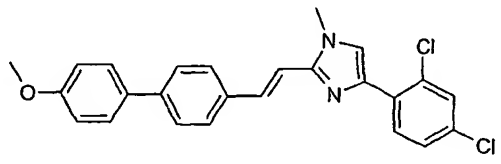
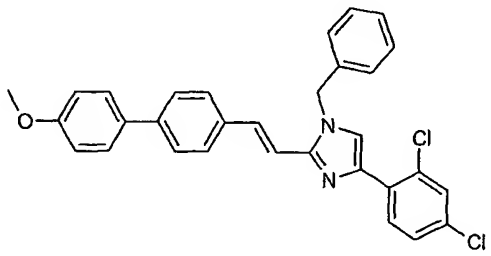
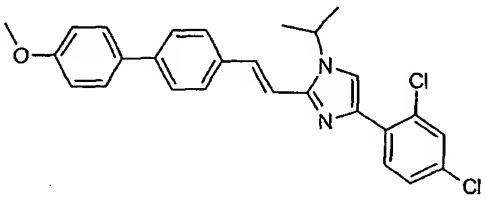
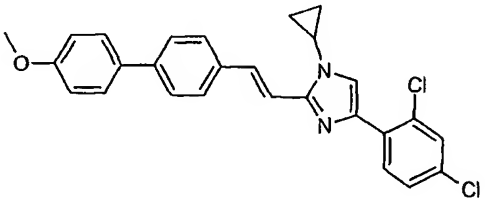
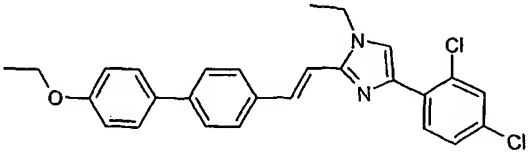
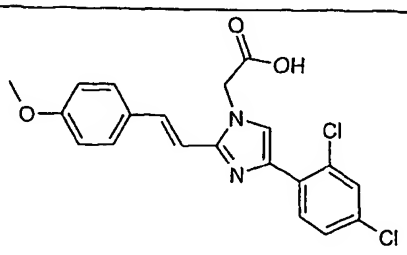
Ex.	Structure	Name
29		4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-3',5'-dimethyl-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
30		4-(2,4-Dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
31		4-(2,4-Dichloro-phenyl)-2-[2-(4'-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
32		4-(2,4-dichloro-phenyl)-2-[2-(3'-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
33		2-[2-(4-benzofuran-2-yl-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
34		2-[2-(5'-chloro-2'-methoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

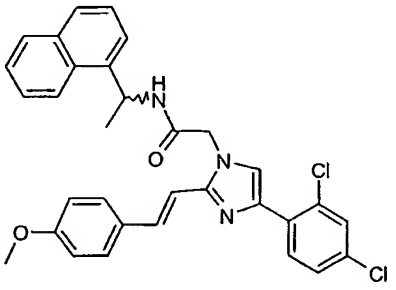
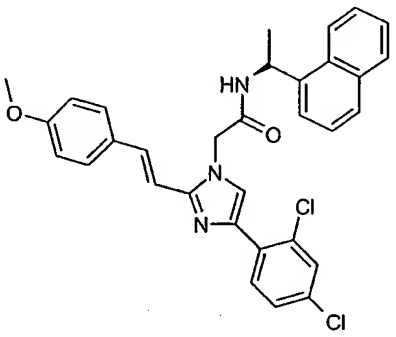
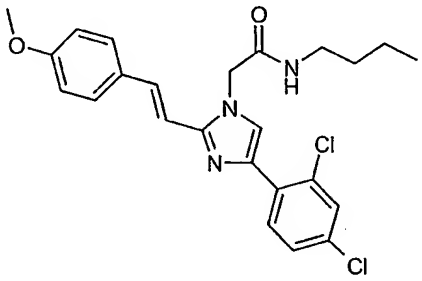
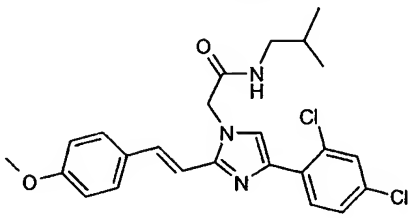
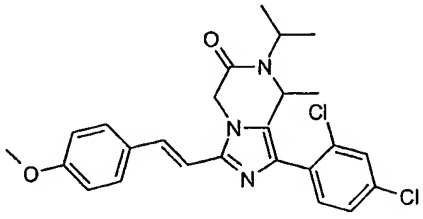
Ex.	Structure	Name
35		2-[2-(4'-tert-butyl-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
36		3-(4'-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yl)-acrylic acid
37		4-(2,4-dichloro-phenyl)-2-{2-[4-(4-methoxy-phenylethynyl)-phenyl]-(E)-vinyl}-1H-imidazole
38		5-(4-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenyl)-pent-4-ynoic acid
39		4'-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-carboxylic acid
40		4-{[(4'-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-carbonyl)-amino]-methyl}-benzoic acid

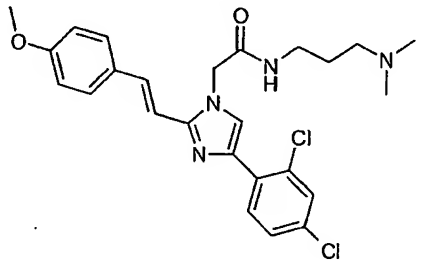
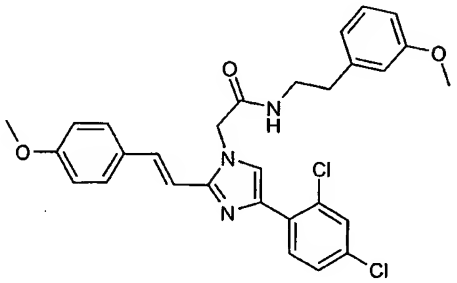
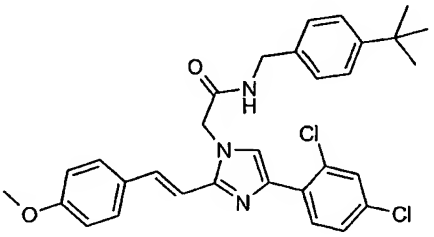
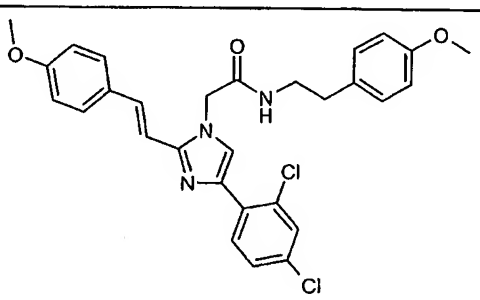
Ex.	Structure	Name
41		4'-{2-[4-(2,4-Dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-carboxylic acid
42		2-[2-(4'-benzyloxy-3'-fluoro-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazole
43		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-3-fluoro-biphenyl-4-yloxymethyl)-benzoic acid
44		4-{2-[4-(2,4-Dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenol
45		4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-ethyl]-1H-imidazole
46		4-(2,4-dichloro-phenyl)-1-ethyl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

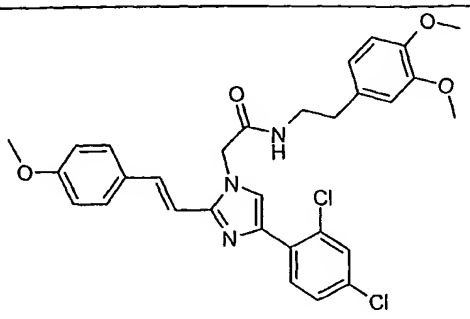
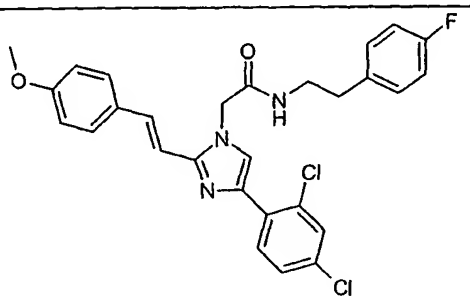
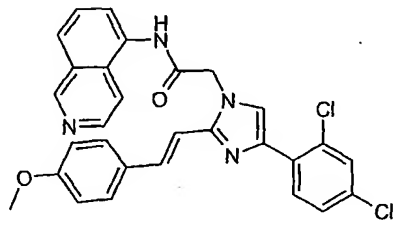
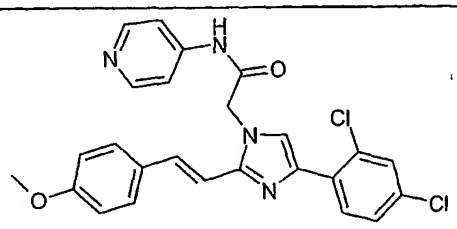
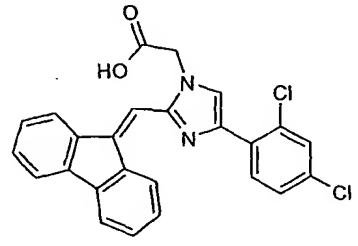
Ex.	Structure	Name
47		4-(4-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenoxymethyl)-benzoic acid
48		3-(4-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenoxymethyl)-benzoic acid
49		4-(4-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenoxy)-butyric acid
50		6-(4-{2-[4-(2,4-Dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenoxy)-hexanoic acid
51		1-butyl-4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
52		4-(2,4-dichloro-phenyl)-1-isobutyl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

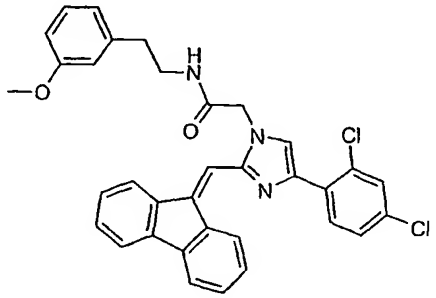
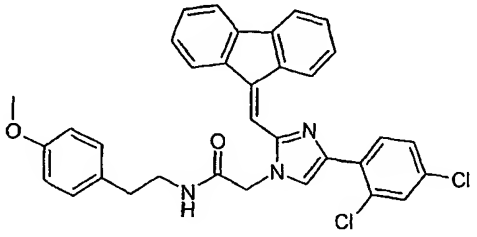
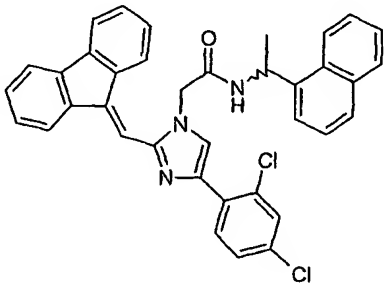
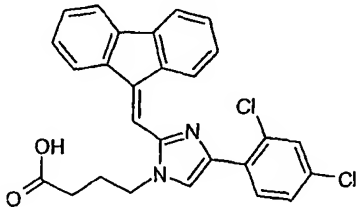
Ex.	Structure	Name
53		2-[2-(4-butoxy-phenyl)-(E)-vinyl]-1-butyl-4-(2,4-dichloro-phenyl)-1H-imidazole
54		2-(2-biphenyl-4-yl-(E)-vinyl)-1-butyl-4-(2,4-dichloro-phenyl)-1H-imidazole
55		1-butyl-4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
56		4-(2,4-dichloro-phenyl)-1-isobutyl-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
57		4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1-propyl-1H-imidazole

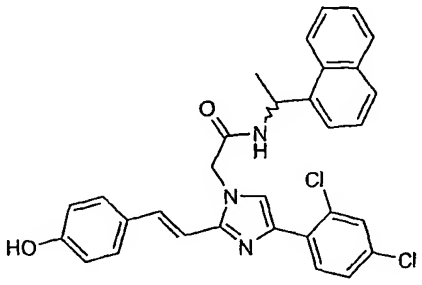
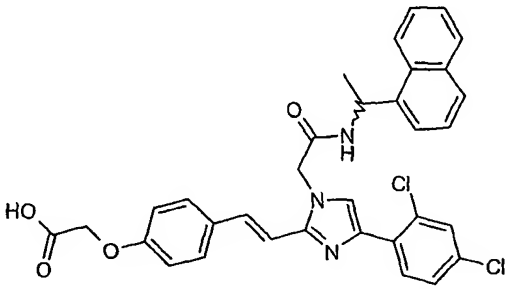
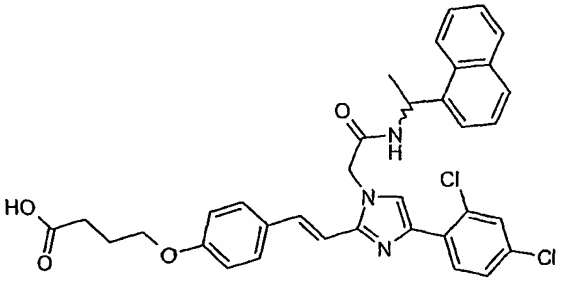
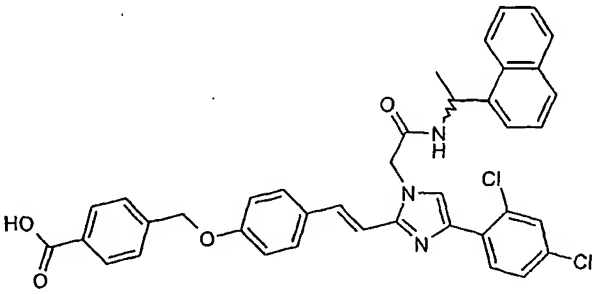
Ex.	Structure	Name
58		4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1-methyl-1H-imidazole
59		1-benzyl-4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
60		4-(2,4-dichloro-phenyl)-1-isopropyl-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
61		1-cyclopropyl-4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
62		4-(2,4-dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-1-ethyl-1H-imidazole
63		{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-acetic acid

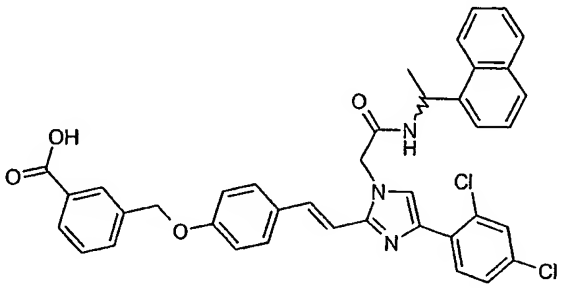
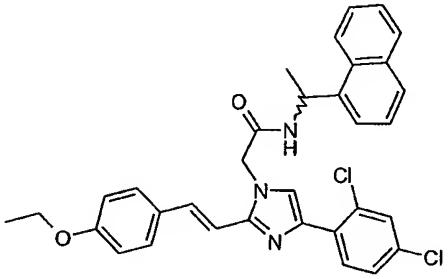
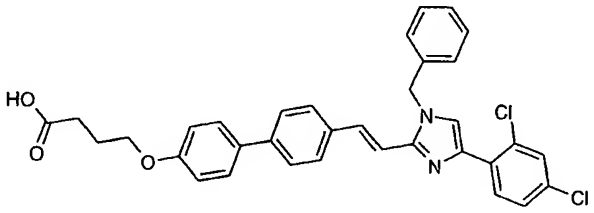
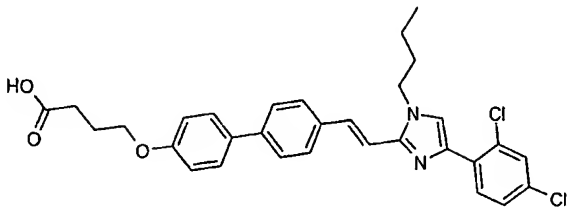
Ex.	Structure	Name
64		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-acetamide
65		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-((S)-1-naphthalen-1-yl-ethyl)-acetamide
66		N-butyl-2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-acetamide
67		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-isobutyl-acetamide
68		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N,N-diisopropyl-acetamide

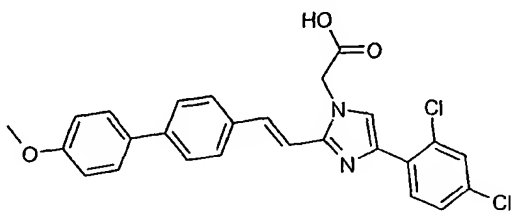
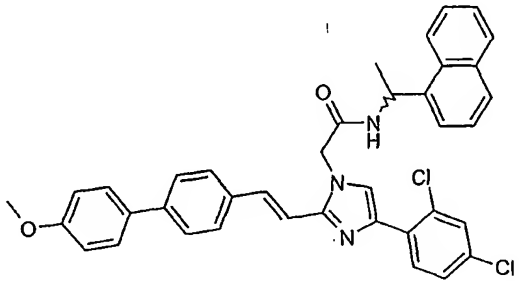
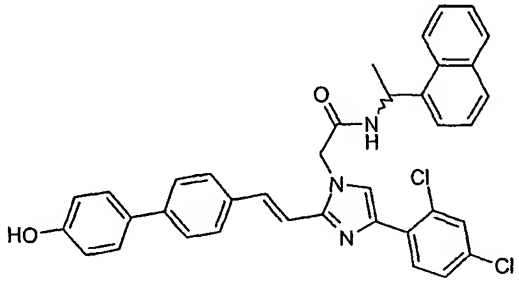
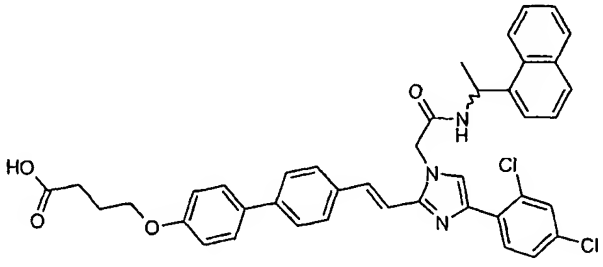
Ex.	Structure	Name
69		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-(3-dimethylamino-propyl)-acetamide
70		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-[2-(3-methoxy-phenyl)-ethyl]-acetamide
71		N-(4-tert-butyl-benzyl)-2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-acetamide
72		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-[2-(4-methoxy-phenyl)-ethyl]-acetamide

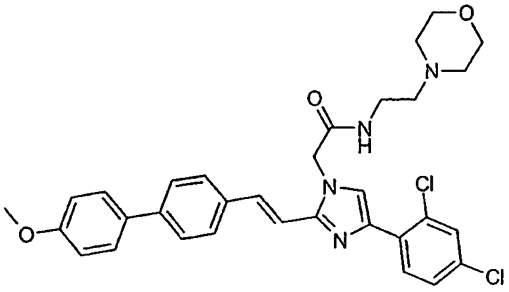
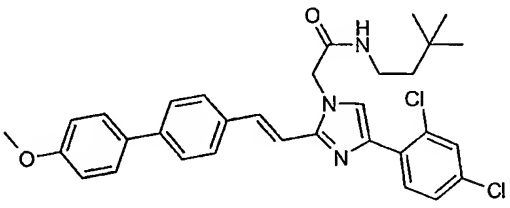
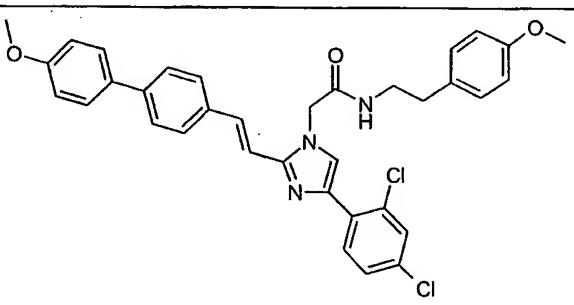
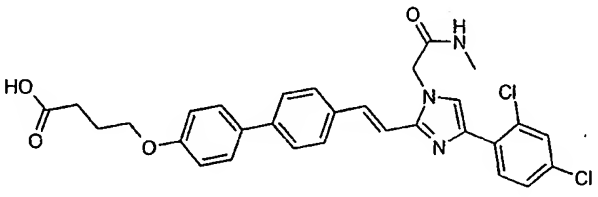
Ex.	Structure	Name
73		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-[2-(3,4-dimethoxy-phenyl)-ethyl]-acetamid
74		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-[2-(4-fluoro-phenyl)-ethyl]-acetamide
75		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-isoquinolin-5-yl-acetamide
76		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-pyridin-4-yl-acetamide
77		[4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-imidazol-1-yl]-acetic acid

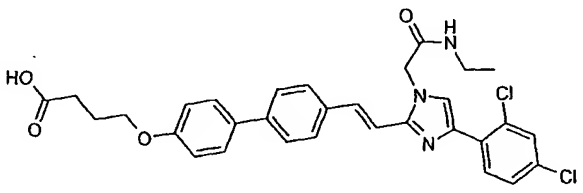
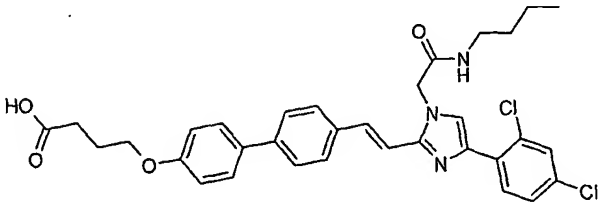
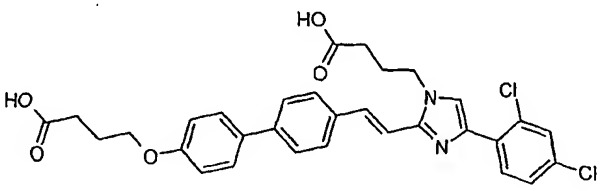
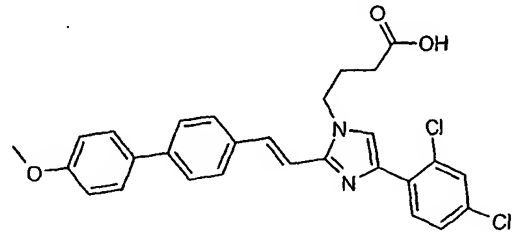
Ex.	Structure	Name
78		2-[4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-imidazol-1-yl]-N-[2-(3-methoxy-phenyl)-ethyl]-acetamide
79		2-[4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-imidazol-1-yl]-N-[2-(4-methoxy-phenyl)-ethyl]-acetamide
80		2-[4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-imidazol-1-yl]-N-(1-naphthalen-1-yl-ethyl)-acetamide
81		4-[4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-imidazol-1-yl]-butyric acid

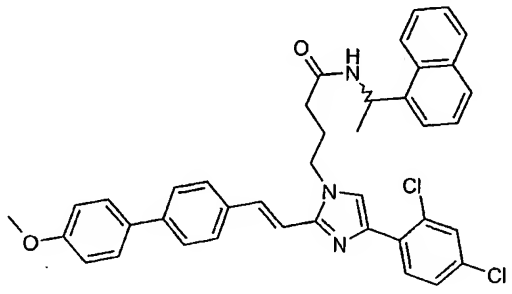
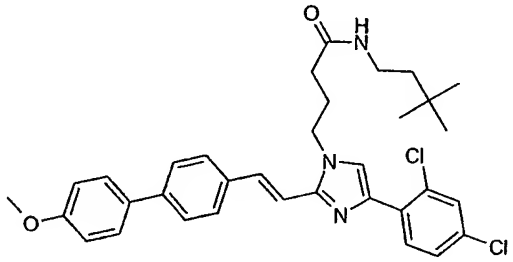
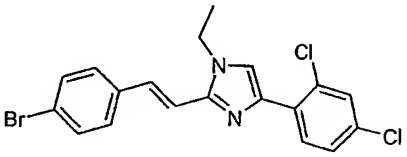
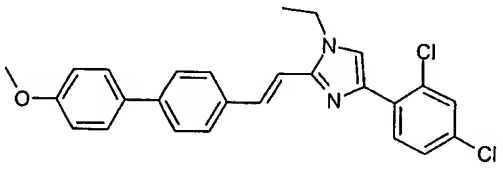
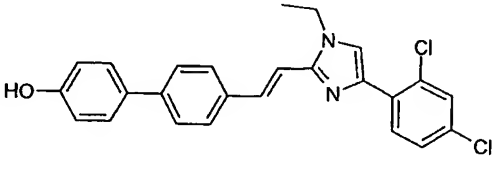
Ex.	Structure	Name
82		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-hydroxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-acetamid
83		[4-(2-{4-(2,4-dichloro-phenyl)-1-[(1-naphthalen-1-yl-ethylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-phenoxy]-acetic acid
84		4-[4-(2-{4-(2,4-dichloro-phenyl)-1-[(1-naphthalen-1-yl-ethylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-phenoxy]-butyric acid
85		4-[4-(2-{4-(2,4-dichloro-phenyl)-1-[(1-naphthalen-1-yl-ethylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-phenoxymethyl]-benzoic acid

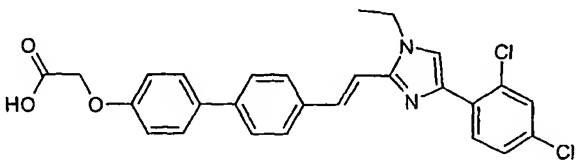
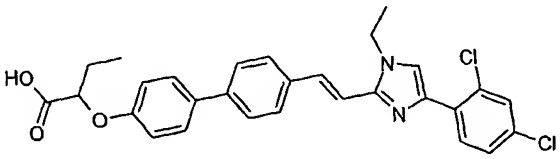
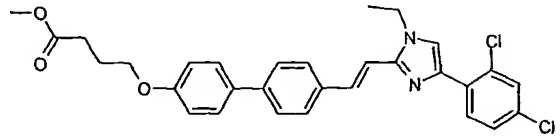
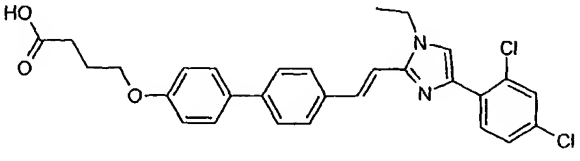
Ex.	Structure	Name
86		3-[4-(2-{4-(2,4-dichloro-phenyl)-1-[(1-naphthalen-1-yl-ethylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-phenoxymethyl]-benzoic acid
87		2-{4-(2,4-dichloro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-acetamide
88		4-(4'-{2-[1-benzyl-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
89		4-(4'-{2-[1-butyl-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid

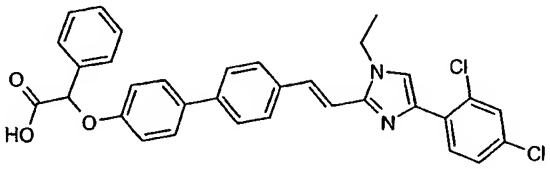
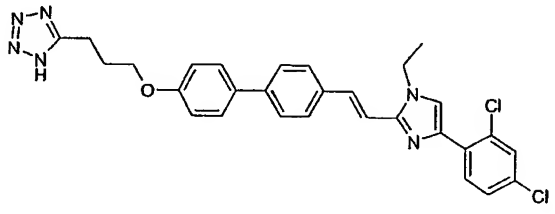
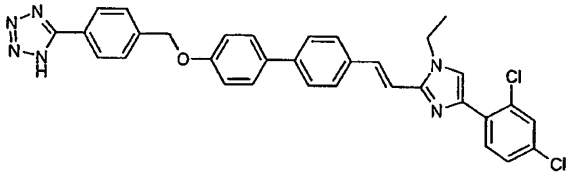
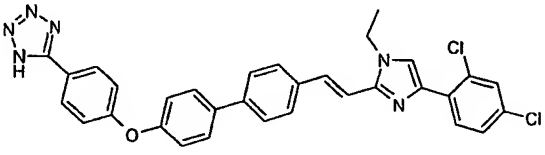
Ex.	Structure	Name
90		{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-acetic acid
91		2-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-acetamide
92		2-{4-(2,4-dichloro-phenyl)-2-[2-(4'-hydroxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-acetamide
93		4-[4'-(2-{4-(2,4-dichloro-phenyl)-1-[(1-naphthalen-1-yl-ethylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid

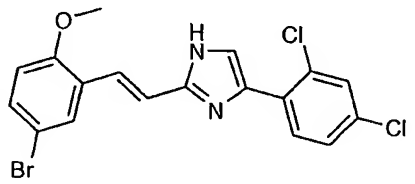
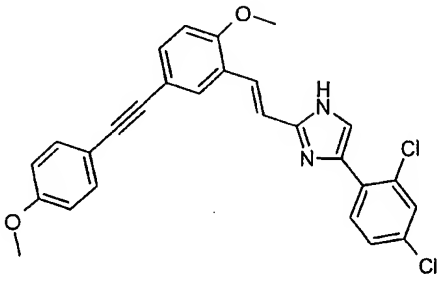
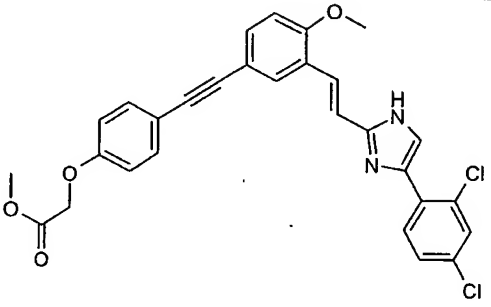
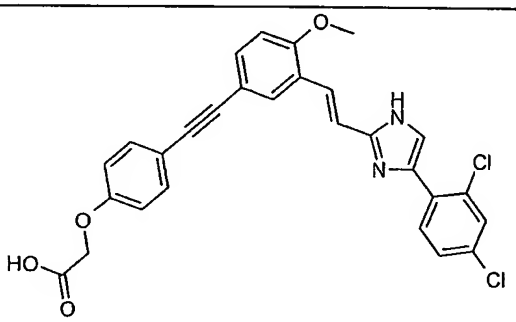
Ex.	Structure	Name
94		2-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(2-morpholin-4-yl-ethyl)-acetamide
95		2-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(3,3-dimethyl-butyl)-acetamide
96		2-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-[2-(4-methoxy-phenyl)-ethyl]-acetamide
97		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methylcarbamoylmethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid

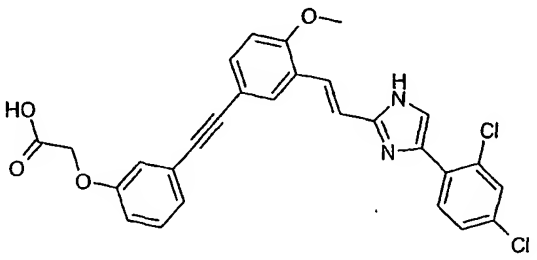
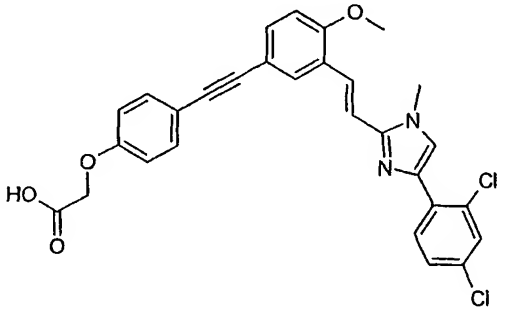
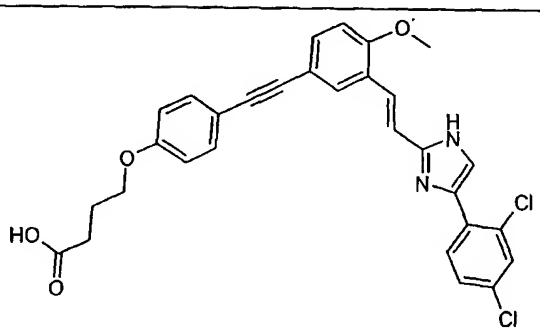
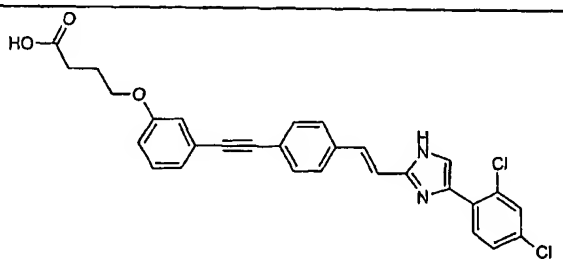
Ex.	Structure	Name
98		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethylcarbamoylmethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
99		4-(4'-{2-[1-butylcarbamoylmethyl-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
100		4-[2-{2-[4'-(3-carboxy-propoxy)-biphenyl-4-yl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-yl]-butyric acid
101		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-butyric acid

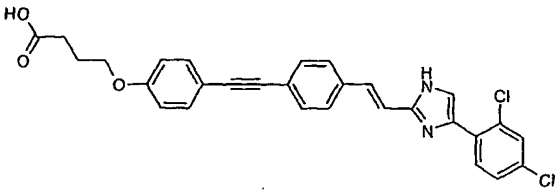
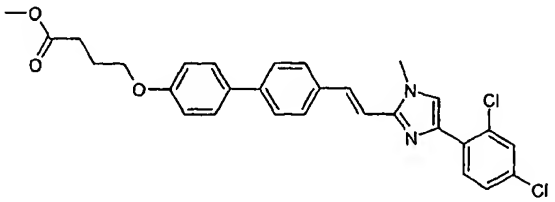
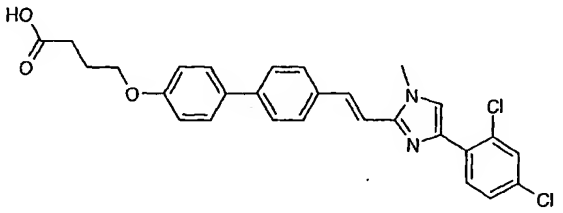
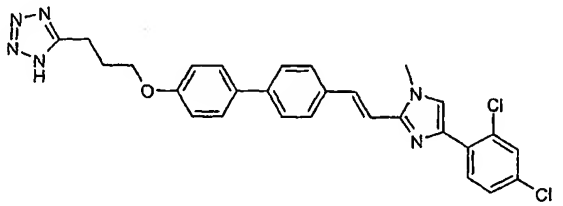
Ex.	Structure	Name
102		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(1-naphthalen-1-yl-ethyl)-butyramide
103		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-N-(3,3-dimethyl-butyl)-butyramide
104		2-[2-(4-bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazole
105		4-(2,4-dichloro-phenyl)-1-ethyl-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
106		4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-ol

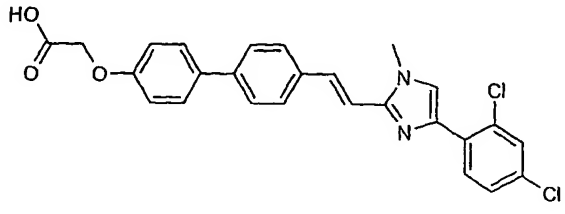
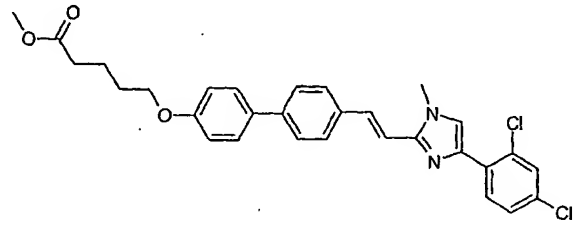
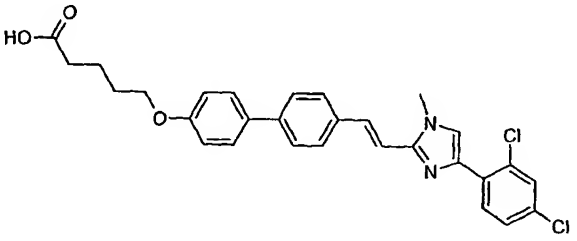
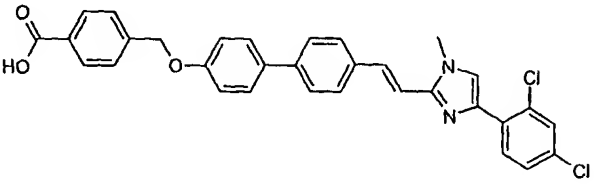
Ex.	Structure	Name
107		(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-acetic acid
108		2-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
109		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
110		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid

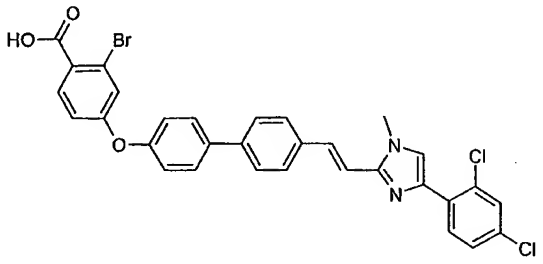
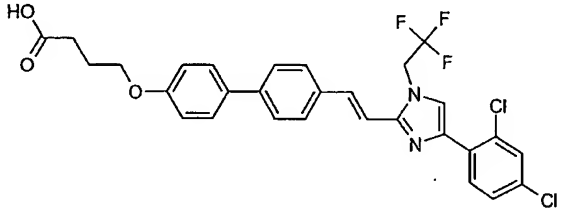
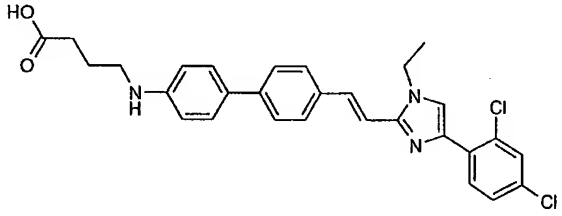
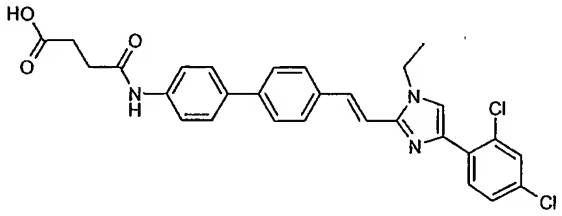
Ex.	Structure	Name
111		(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-phenyl-acetic acid
112		5-[3-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-propyl]-1H-tetrazole
113		5-[4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxymethyl)-phenyl]-1H-tetrazole
114		5-[4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-phenyl]-1H-tetrazole

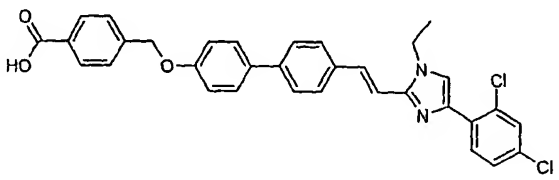
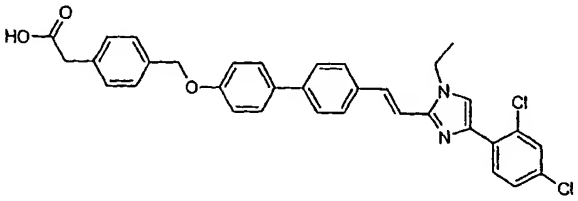
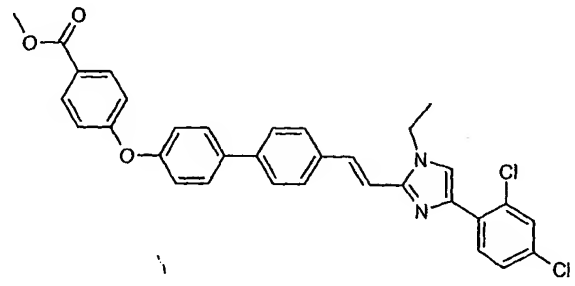
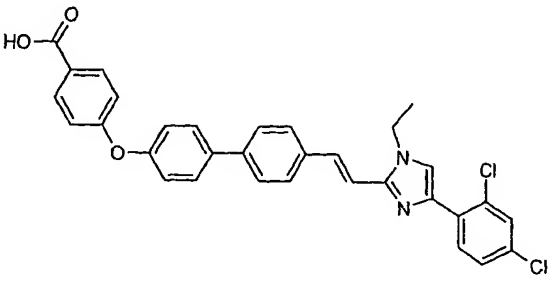
Ex.	Structure	Name
115		2-[2-(5-bromo-2-methoxy-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
116		4-(2,4-dichloro-phenyl)-2-{2-[2-methoxy-5-(4-methoxy-phenylethynyl)-phenyl]-(E)-vinyl}-1H-imidazole
117		[4-(3-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-phenylethynyl)-phenoxy]-acetic acid methyl ester
118		[4-(3-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-phenyl-ethynyl)-phenoxy]-acetic acid

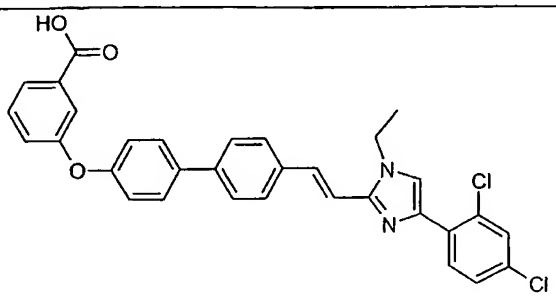
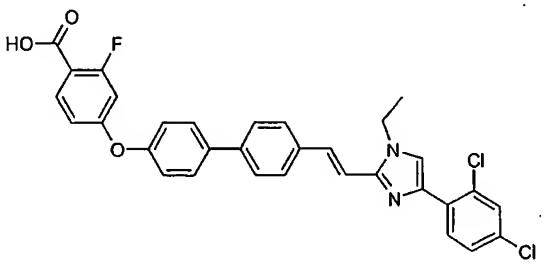
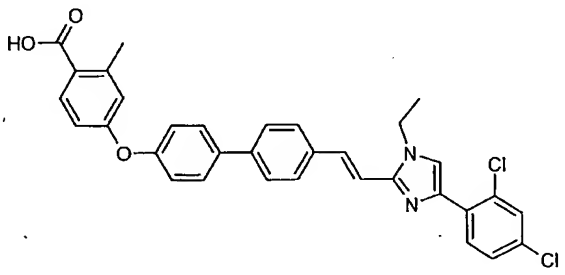
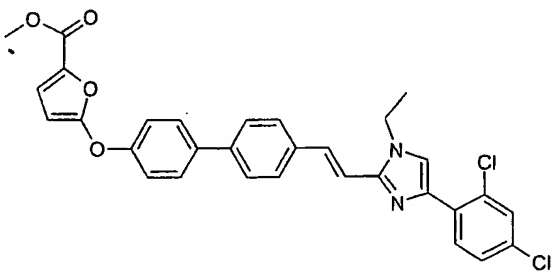
Ex.	Structure	Name
119		[3-(3-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-phenylethynyl)-phenoxy]-acetic acid
120		[4-(3-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-phenylethynyl)-phenoxy]-acetic acid
121		4-[4-(3-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-phenylethynyl)-phenoxy]-butyric acid
122		4-[3-(4-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenylethynyl)-phenoxy]-butyric acid

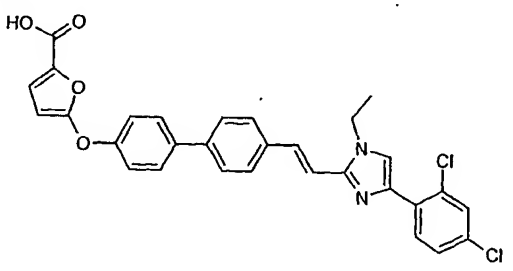
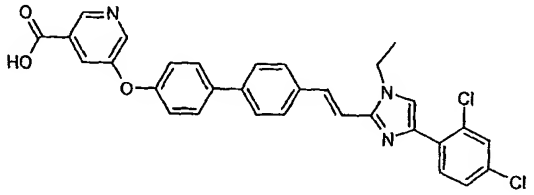
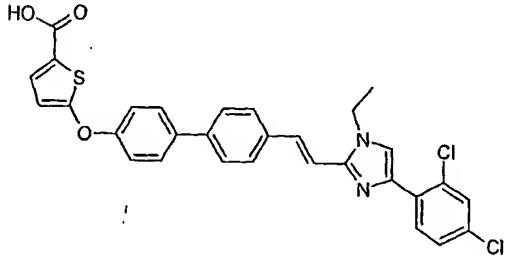
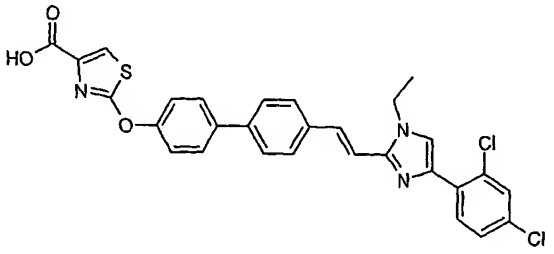
Ex.	Structure	Name
123		4-[4-(4-{2-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenylethynyl)-phenoxy]-butyric acid
124		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
125		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
126		5-[3-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-propyl]-1H-tetrazole

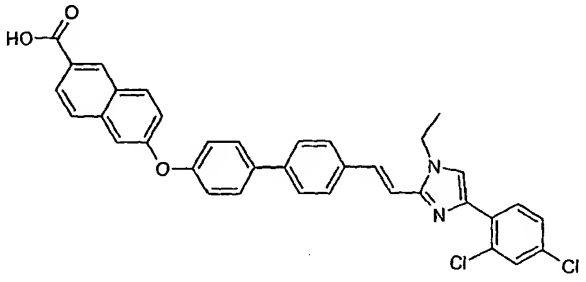
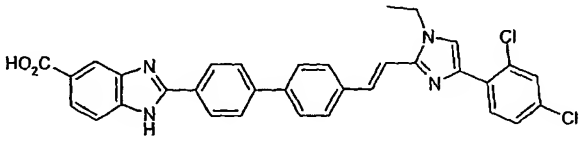
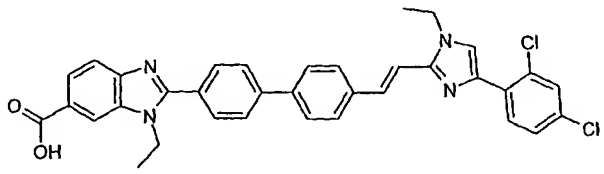
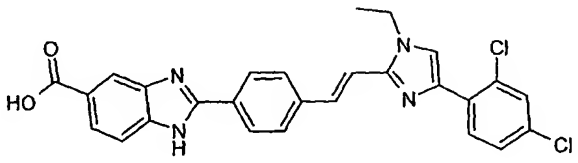
Ex.	Structure	Name
127		(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-acetic acid
128		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-pentanoic acid methyl ester
129		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-pentanoic acid
130		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxymethyl)-benzoic acid

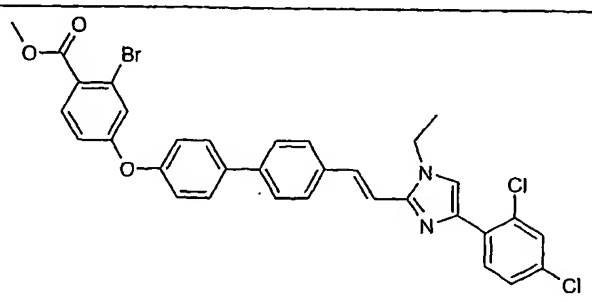
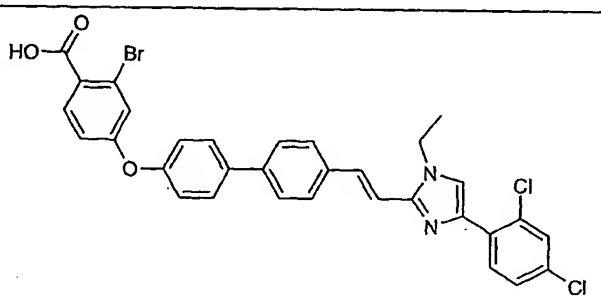
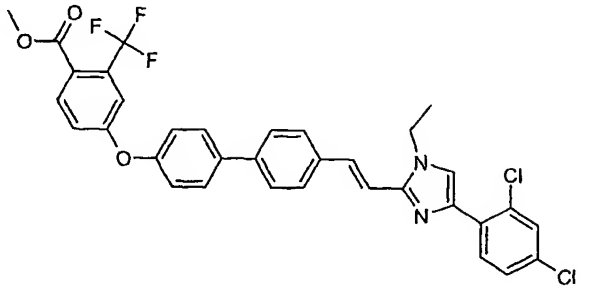
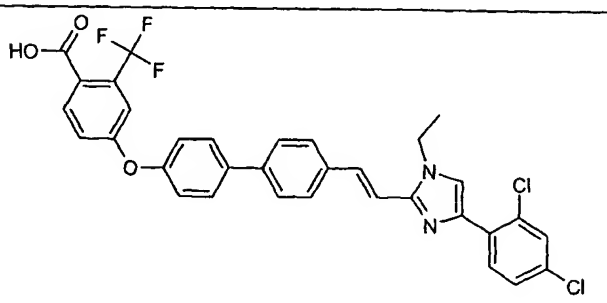
Ex.	Structure	Name
131		2-bromo-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-methyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid
132		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-(2,2,2-trifluoro-ethyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
133		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-ylamino)-butyric acid
134		N-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yl)-succinamic acid

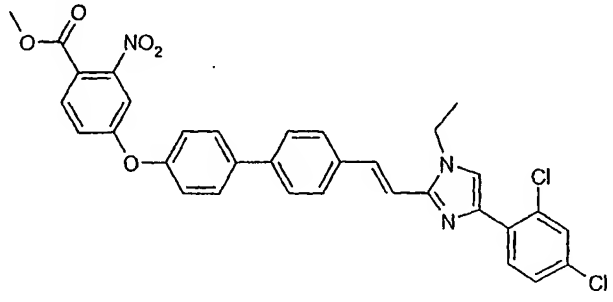
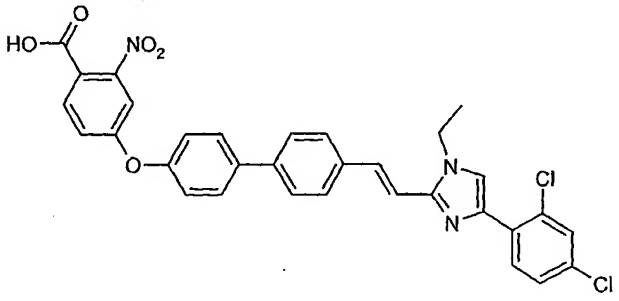
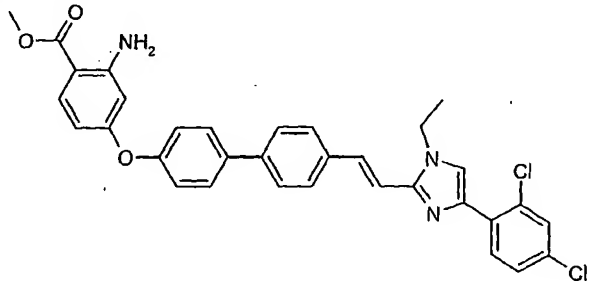
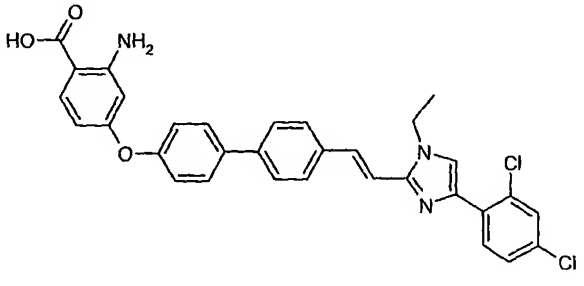
Ex.	Structure	Name
135		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxymethyl)-benzoic acid
136		[4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxymethyl)-phenyl]-acetic acid
137		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid methyl ester
138		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid

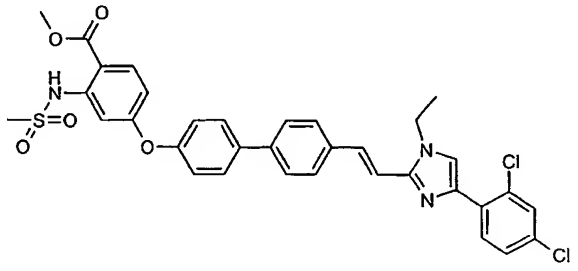
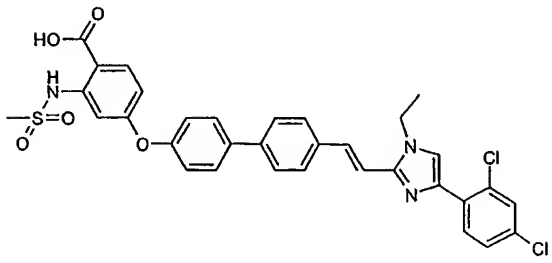
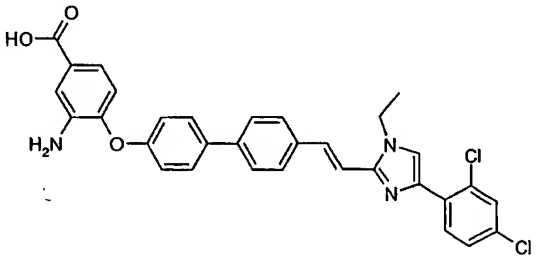
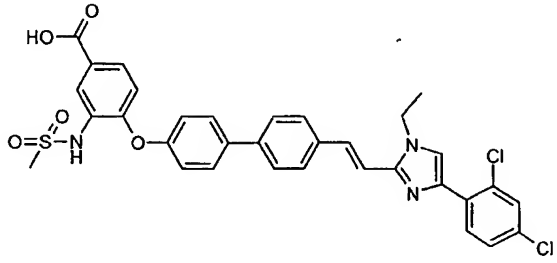
Ex.	Structure	Name
139		3-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid
140		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-fluoro-benzoic acid
141		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-methyl-benzoic acid
142		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-furan-2-carboxylic acid methyl ester

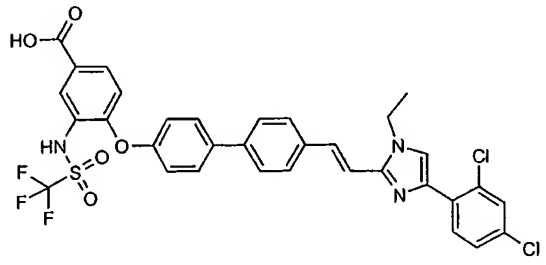
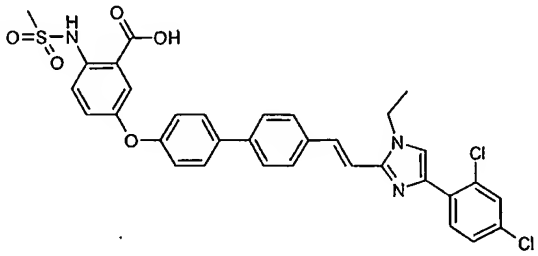
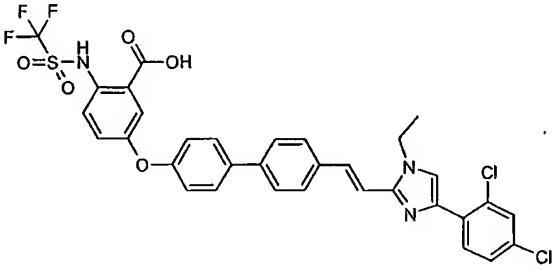
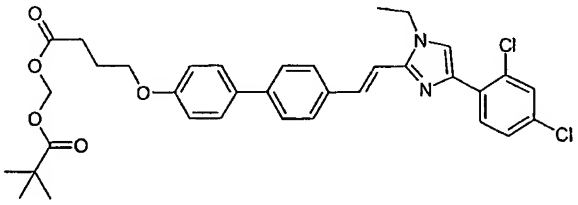
Ex.	Structure	Name
143		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-furan-2-carboxylic aci
144		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-nicotinic acid
145		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-thiophene-2-carboxylic acid
146		2-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-thiazole-4-carboxylic acid

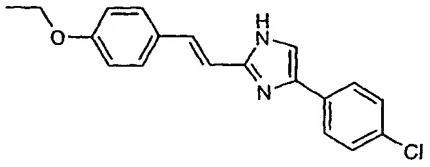
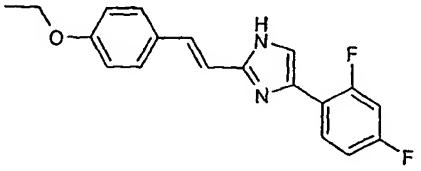
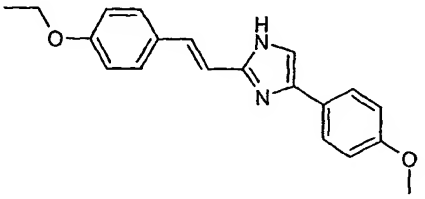
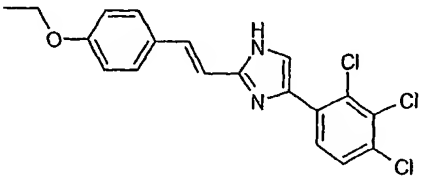
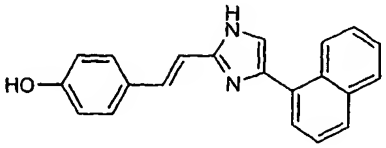
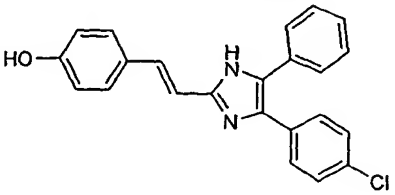
Ex.	Structure	Name
147		6-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-naphthalene-2-carboxylic acid
148		2-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yl)-1H-benzoimidazole-5-carboxylic acid
149		2-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yl)-3-ethyl-3H-benzoimidazole-5-carboxylic acid
150		2-(4-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenyl)-1H-benzoimidazole-5-carboxylic acid

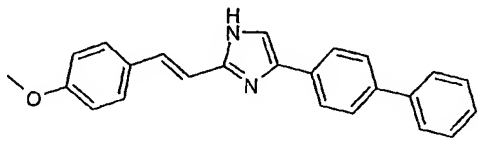
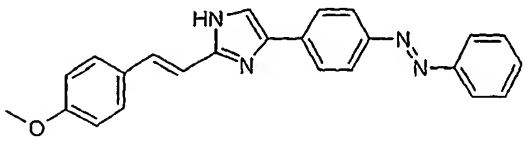
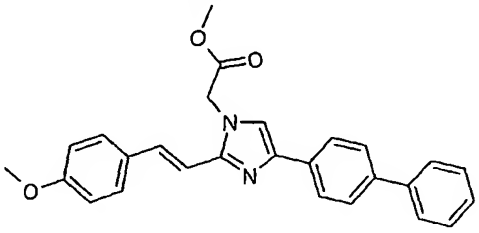
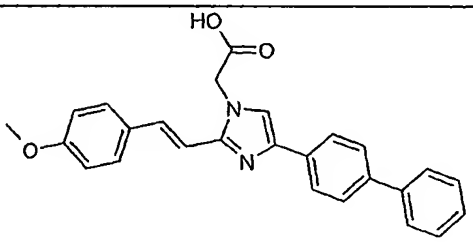
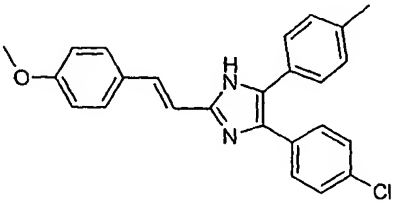
Ex.	Structure	Name
151		2-bromo-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid methyl este
152		2-bromo-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid
153		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-trifluoromethyl-benzoic acid methyl ester
154		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-trifluoromethyl-benzoic acid

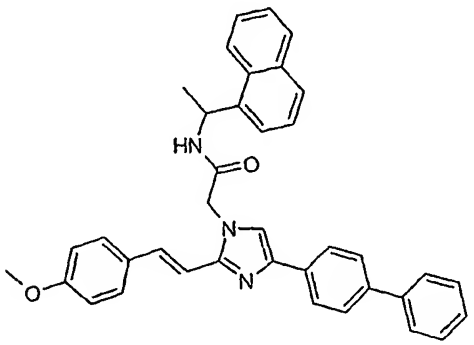
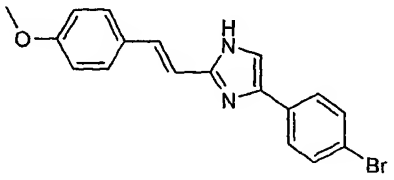
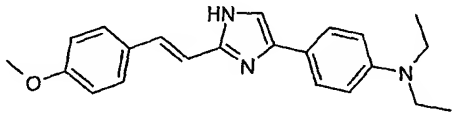
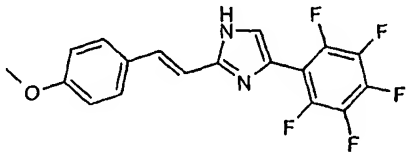
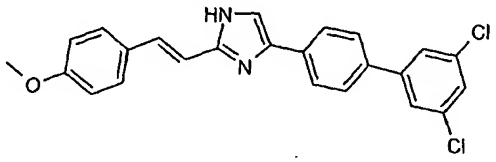
Ex.	Structure	Name
155		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-nitro-benzoic acid methyl ester
156		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-nitro-benzoic acid
157		2-amino-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid methyl ester
158		2-amino-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid

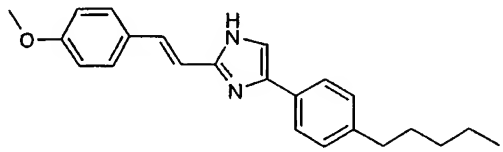
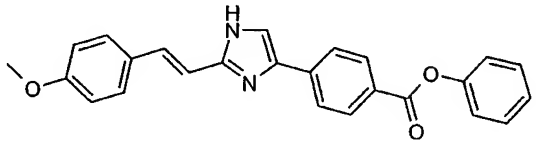
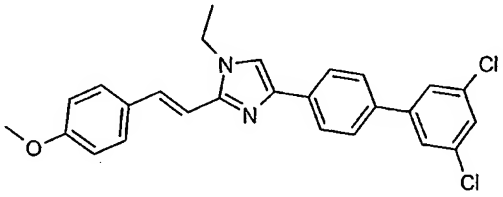
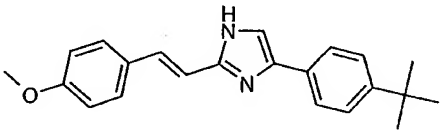
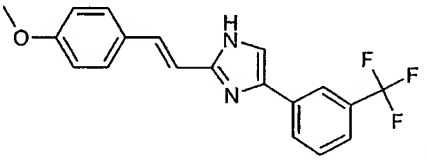
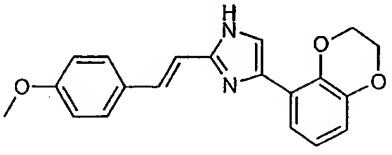
Ex.	Structure	Name
159		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-methanesulfonylamino-benzoic acid methyl ester
160		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-methanesulfonylamino-benzoic acid
161		3-amino-4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-benzoic acid
162		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-3-methanesulfonylamino-benzoic acid

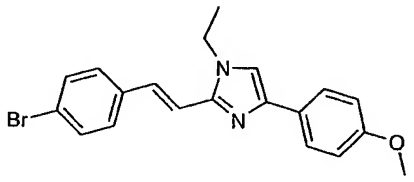
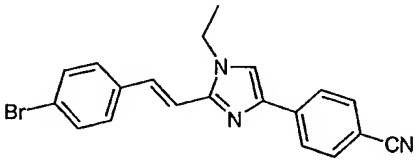
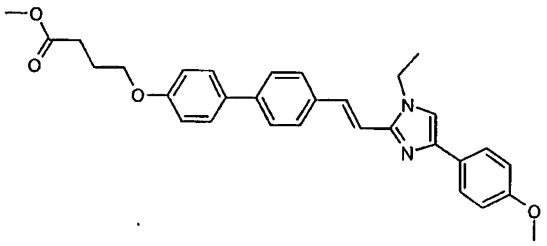
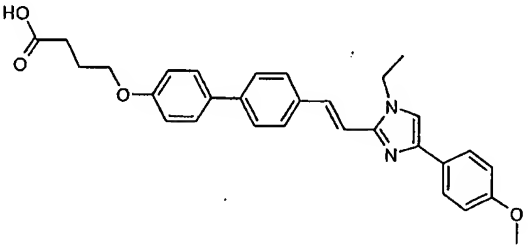
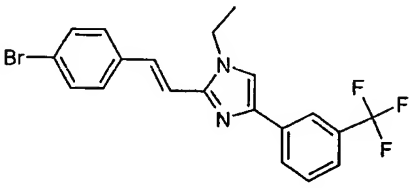
Ex.	Structure	Name
163		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-3-trifluoromethanesulfonyl-amino-benzoic acid
164		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-methanesulfonylamino-benzoic acid
165		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-trifluoromethane-sulfonylamino-benzoic acid
166		4-(4'-{2-[4-(2,4-Dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid 2,2-dimethyl-propionyloxymethyl ester

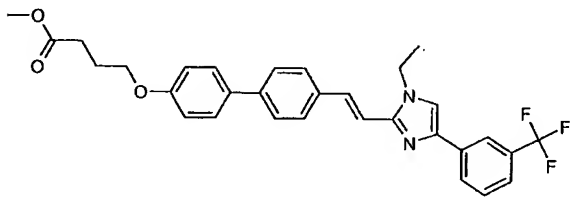
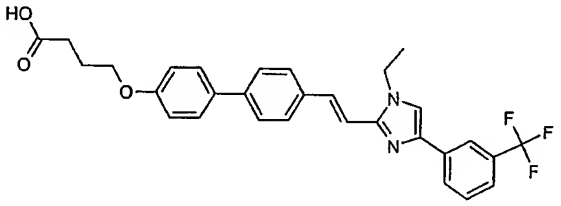
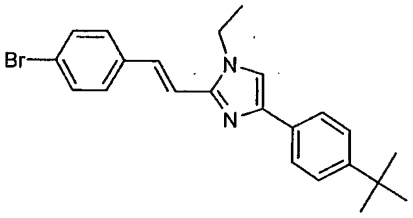
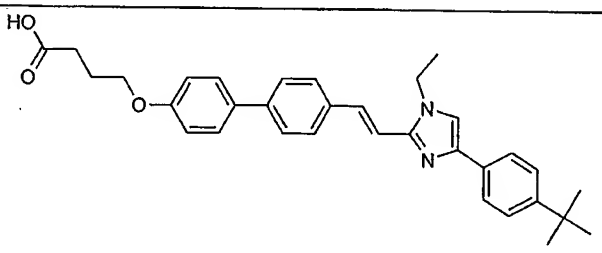
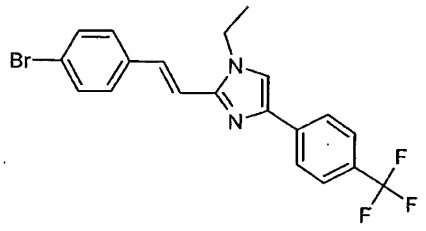
Ex.	Structure	Name
167		4-(4-chloro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl-1H-imidazole
168		4-(2,4-difluoro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-1H-imidazole
169		2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-4(4-methoxy-phenyl)-1H-imidazole
170		2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-4-(2,3,4-trichloro-phenyl)-1H-imidazole
171		4-[2-(4-naphthalen-1yl-1H-imidazole-2-yl)-(E)-vinyl]-phenol
172		4-{2-[4-(4-chloro-phenyl)-5-phenyl-1H-imidazole-2-yl]-(E)-vinyl}-phenol

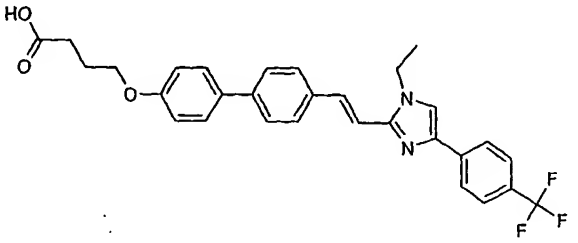
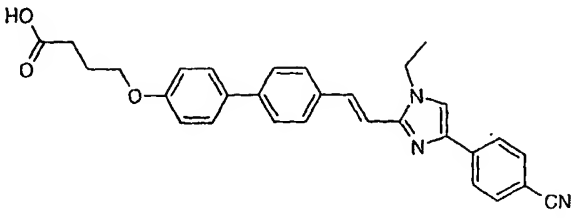
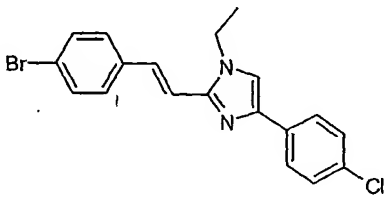
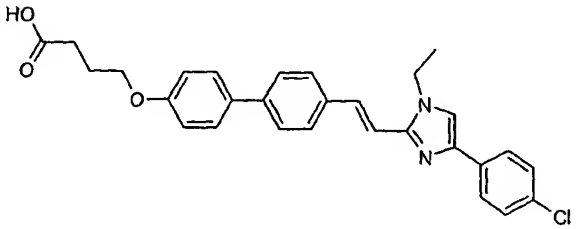
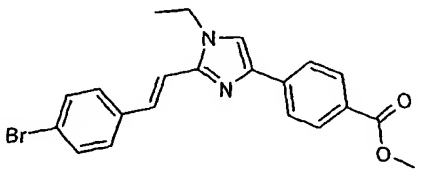
Ex.	Structure	Name
173		4-biphenyl-4-yl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
174		(4-{2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole-4-yl}-phenyl-diazene
175		{4-biphenyl-4-yl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazole-1yl}-acetic acid methyl ester
176		{4-biphenyl-4-yl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazole-1yl}-acetic acid
177		4-(4-chloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-5-p-tolyl-1H-imidazole

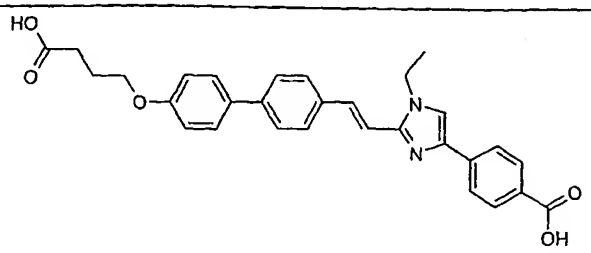
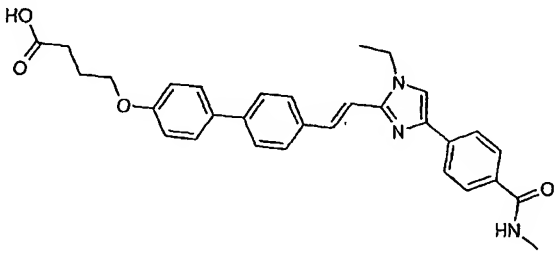
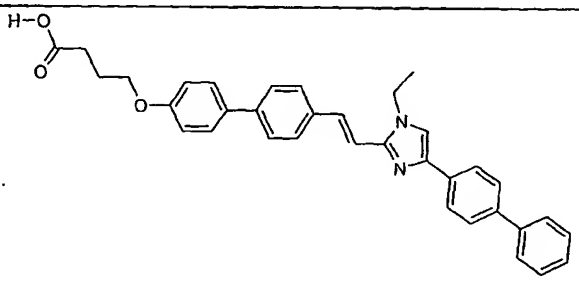
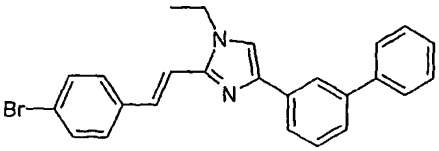
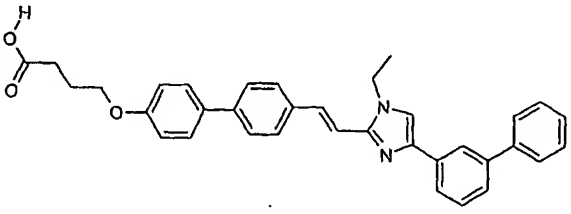
Ex.	Structure	Name
178		2-{4-biphenyl-4-yl-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-imidazole-1yl}-N-(1-naphthalen-1-yl-ethyl)-acetamide
179		4-(4-bromo-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
180		diethyl-(4-{2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazol-4yl}-phenyl)-amine
181		2-[2-(4-methoxy-phenyl)-(E)-vinyl]-4-pentafluorophenyl-1H-imidazole
182		4-(3`,5`-dichloro-biphenyl-4-yl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

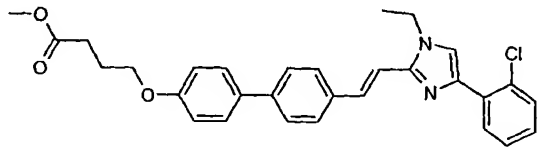
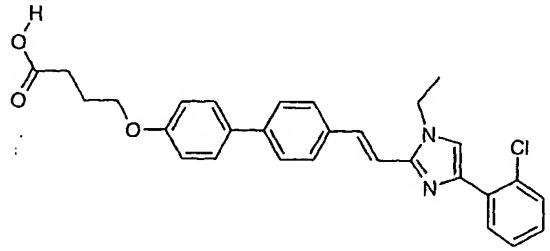
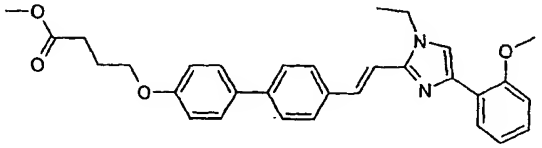
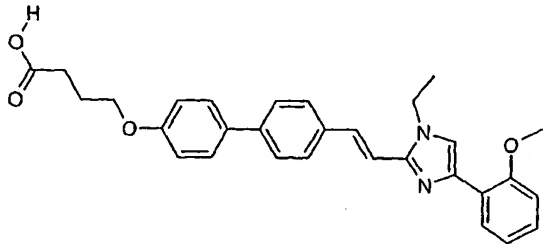
Ex.	Structure	Name
183		2-[2-(4-methoxy-phenyl)-(E)-vinyl]-4-(4-pentyl-phenyl)-1H-imidazole
184		4-{2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazol-4-yl}-benzoic acid phenyl ester
185		4-(3`,5`-dichloro-biphenyl-4-yl)-1-ethyl-2-[-2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
186		4-(4-tert-butyl-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole
187		2-[2-(4-methoxy-phenyl)-(E)-vinyl]-4-(3-trifluoromethyl-phenyl)-1H-imidazole
188		4-(2,3-dihydro-benzo[1,4]dioxin-5-yl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

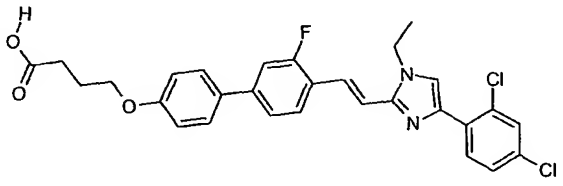
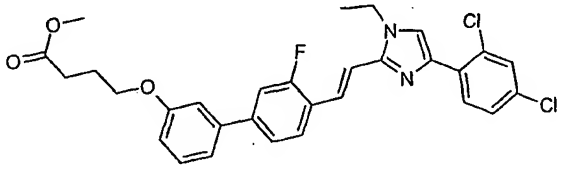
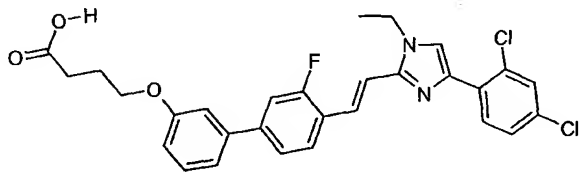
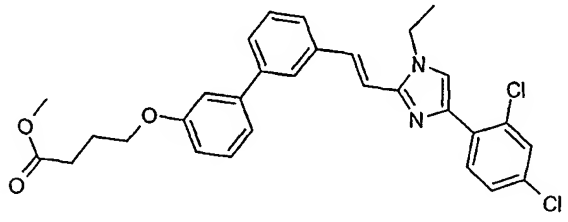
Ex.	Structure	Name
189		2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-4-(4-methoxy-phenyl)-1H-imidazole
190		2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-4-(4-cyano-phenyl)-1H-imidazole
191		4-(4`-{2-[1-ethyl-4-(4-methoxy-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
192		4-(4`-{2-[1-ethyl-4-(4-methoxy-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
193		2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-4-(3-trifluoromethyl-phenyl)-1H-imidazole

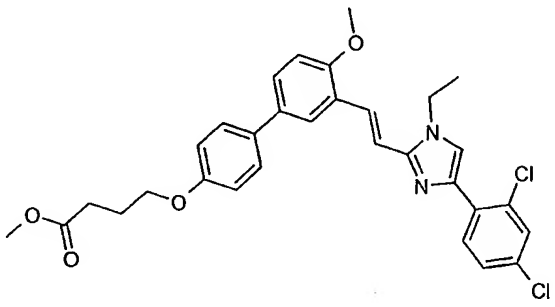
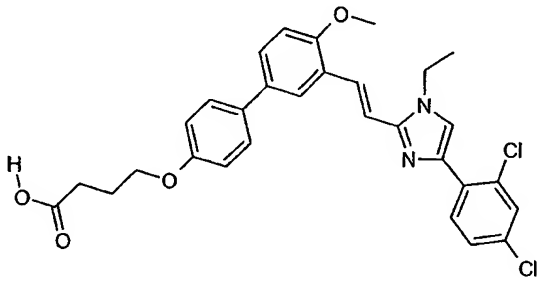
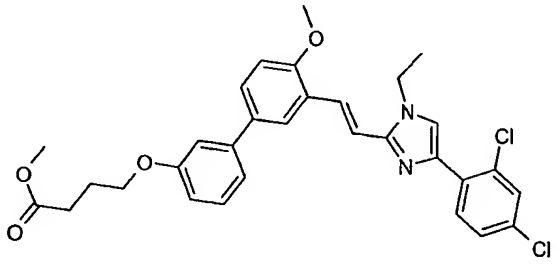
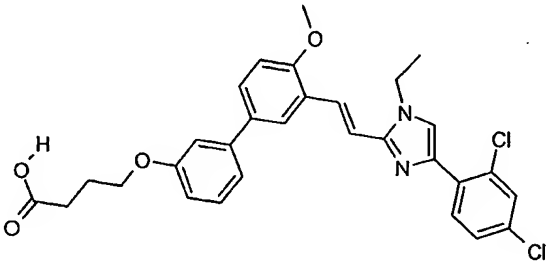
Ex.	Structure	Name
194		4-(4`-[2-[1-ethyl-4-(3-trifluoromethyl-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4yloxy)-butyric acid methyl ester
195		4-(4`-[2-[1-ethyl-4-(3-trifluoromethyl-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4yloxy)-butyric acid
196		2-[2-(4-bromo-phenyl)-(E)-vinyl]-4-(4-tert-butyl-phenyl)-1-ethyl-1H-imidazole
197		4-(4`-{2-[4-tert-butyl-phenyl)-1-ethyl-iH-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
198		2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-4-(4-trifluoromethyl-phenyl)-1H-imidazole

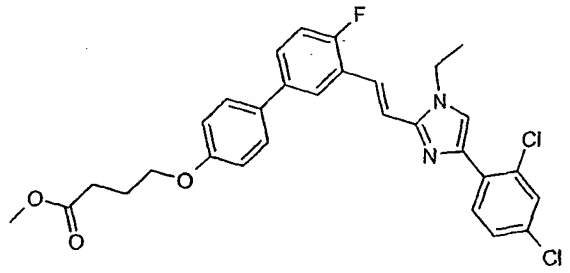
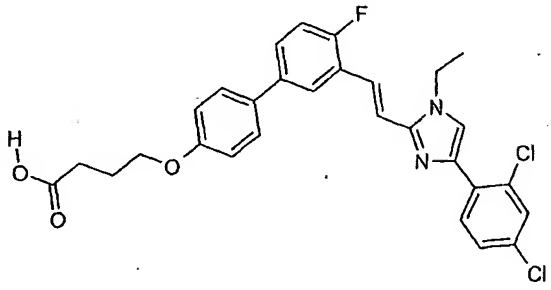
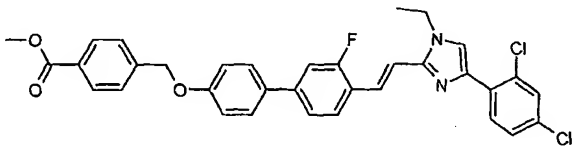
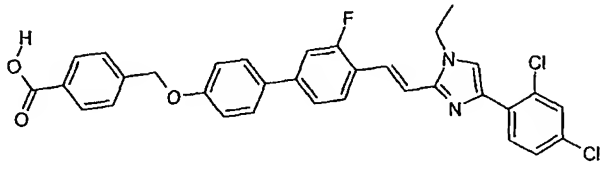
Ex.	Structure	Name
199		4-(-4`-{2-[1-ethyl-4-(4-trifluoromethyl-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
200		4-(-4`-{2-[1-ethyl-4-(4-cyano-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
201		2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-4-(4-chloro-phenyl)-1H-imidazole
202		4-(-4`-{2-[1-ethyl-4-(4-chloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
203		4-{2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-1H-imidazol-4-yl}-benzoic acid methyl ester

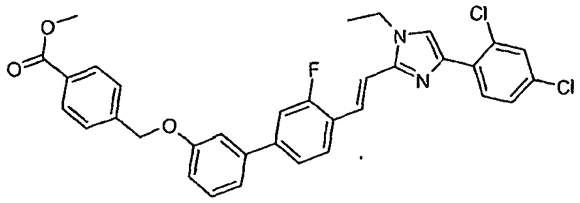
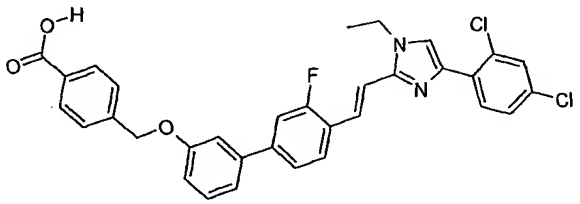
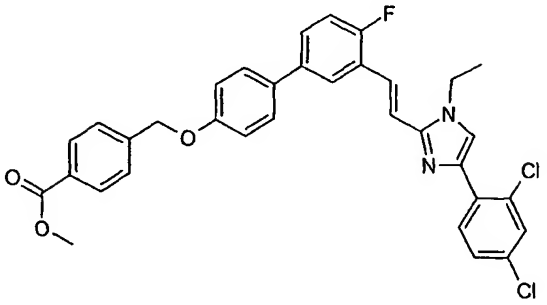
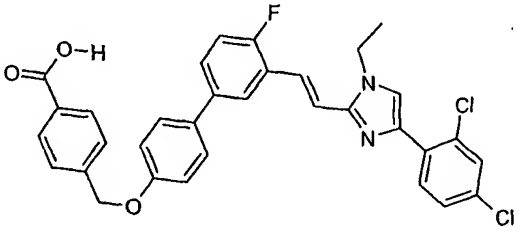
Ex.	Structure	Name
204		4-(1-ethyl-2-{2-[4`-(3-methoxycarbonyl-propoxy)-biphenyl-4-yl}-1H-imidazol-4-yl)-benzoic acid
205		4-(4`-{2-[1-ethyl-4-(4-methylcarbamoyl-phenyl)-1H-imidazol-2yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
206		4-{4'-[2-(4-biphenyl-4-yl-1-ethyl-1H-imidazol-2-yl)-(E)-vinyl]-biphenyl-4-yloxy}-butyric acid
207		4-biphenyl-3-yl-2-[2-(4-bromo-phenyl)-(E)-vinyl]-1-ethyl-1H-imidazole
208		4-{-4'-[2-(4-biphenyl-3-yl-1-ethyl-1H-imidazol-2-yl)-(E)-vinyl]-biphenyl-4-yloxy}-butyric acid

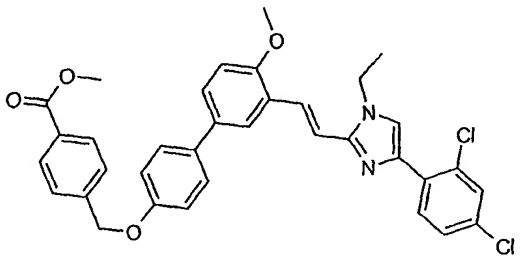
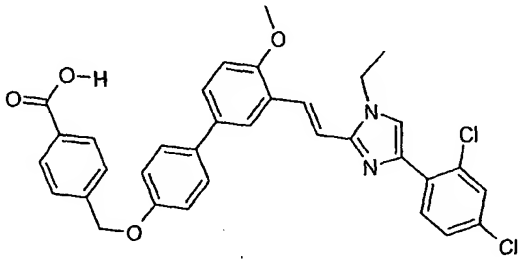
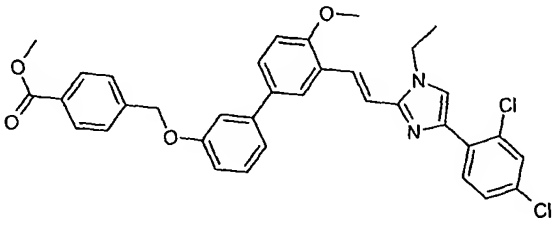
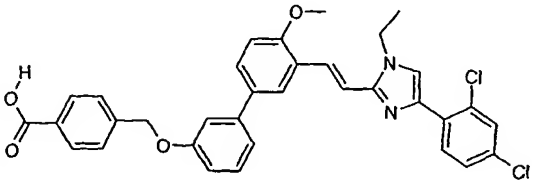
Ex.	Structure	Name
209		4-(4'-{2-[4-(2-chloro-phenyl)-1-ethyl-1H-imidazole-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
210		4-(4'-{2-[4-(2-chloro-phenyl)-1-ethyl-1H-imidazole-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
211		4-(4'-{2-[4-(2-methoxy-phenyl)-1-ethyl-1H-imidazole-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
212		4-(4'-{2-[4-(2-methoxy-phenyl)-1-ethyl-1H-imidazole-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid

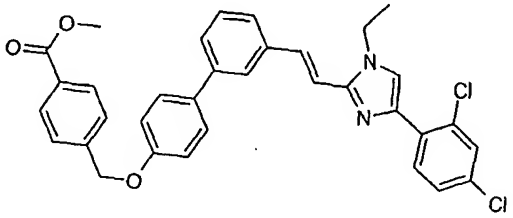
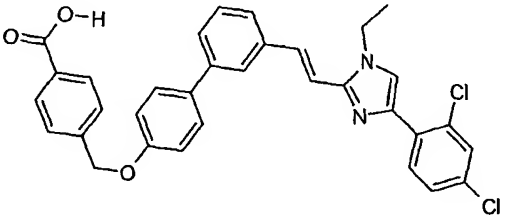
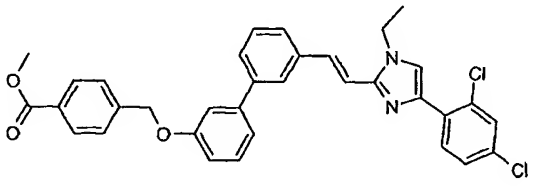
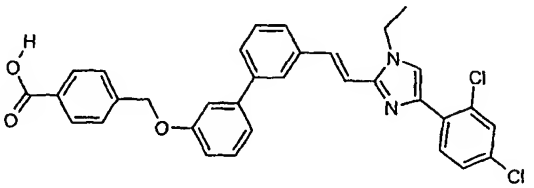
Ex.	Structure	Name
213		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-3'-fluoro-biphenyl-4-yloxy)-butyric acid
214		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-3'-fluoro-biphenyl-3-yloxy)-butyric acid methyl ester
215		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-3'-fluoro-biphenyl-3-yloxy)-butyric acid
216		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-3-yloxy)-butyric acid methyl ester

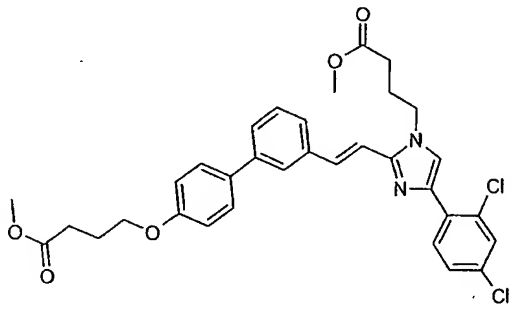
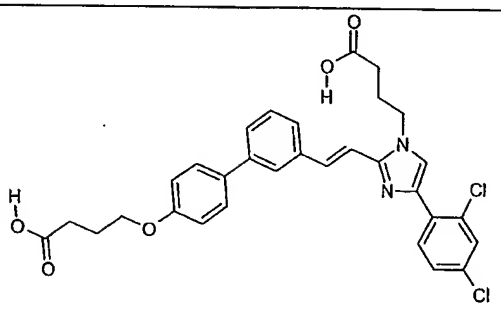
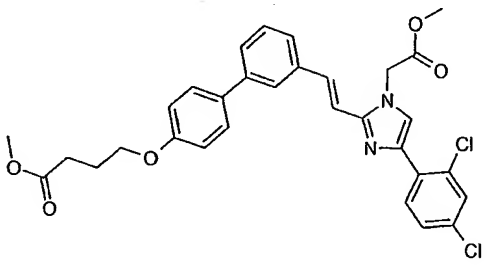
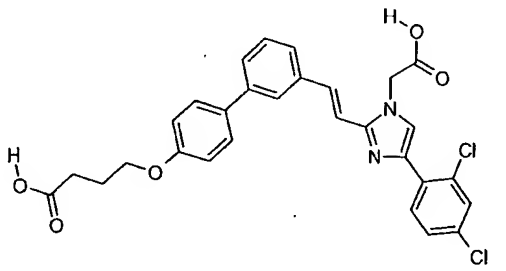
Ex.	Structure	Name
217		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-biphenyl-4-yloxy)-butyric acid methyl ester
218		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-4-methoxy-biphenyl-4-yloxy)-butyric acid
219		4-(3'-{2-[4-(2,4-Dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl;}-4'-methoxy-biphenyl-3-yloxy)-butyric acid methyl ester
220		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl;}-4'-methoxy-biphenyl-3-yloxy)-butyric acid

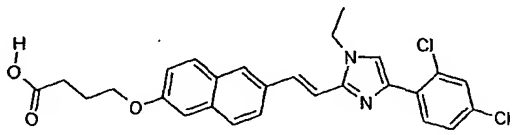
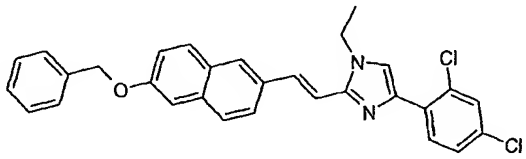
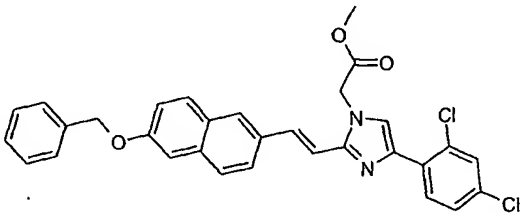
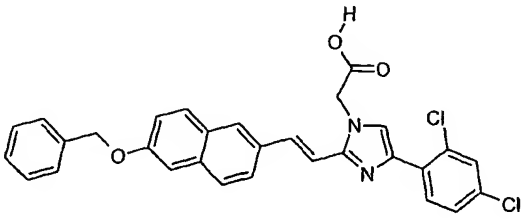
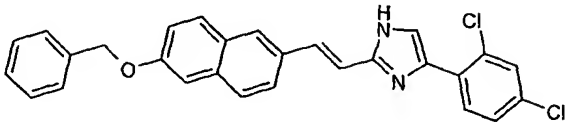
Ex.	Structure	Name
221		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-4'-fluoro-biphenyl-4-yloxy)-butyric acid methyl ester
222		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-4'-fluoro-biphenyl-4-yloxy)-butyric acid
223		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-3'-fluoro biphenyl-4-yloxymethyl)-benzoic acid methyl ester
224		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-3'-fluoro biphenyl-4-yloxymethyl)-benzoic acid

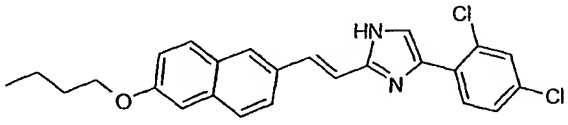
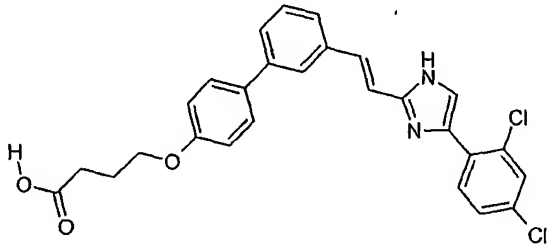
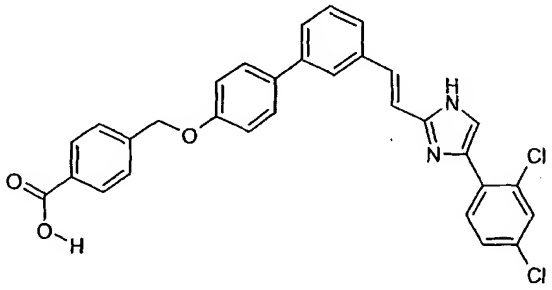
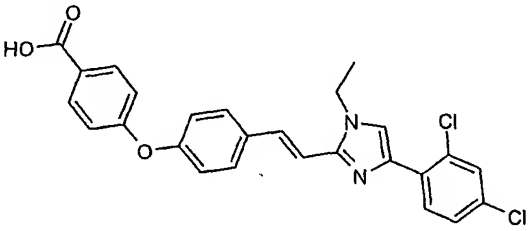
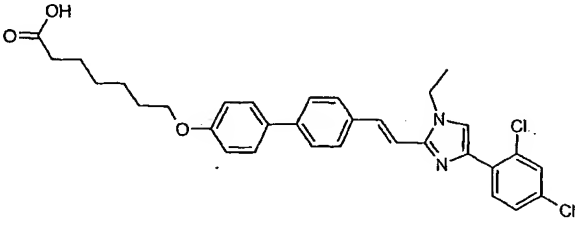
Ex.	Structure	Name
225		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-3'-fluoro biphenyl-3-yloxymethyl)-benzoic acid methyl ester
226		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-3'-fluoro biphenyl-3-yloxymethyl)-benzoic acid
227		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-fluorobiphenyl-4-yloxymethyl)-benzoic acid methyl ester
228		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-fluorobiphenyl-4-yloxymethyl)-benzoic acid

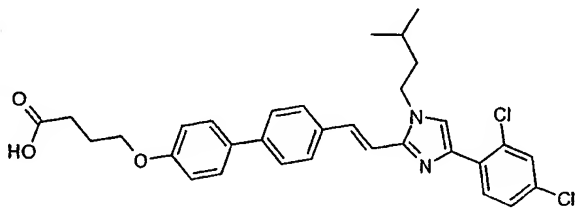
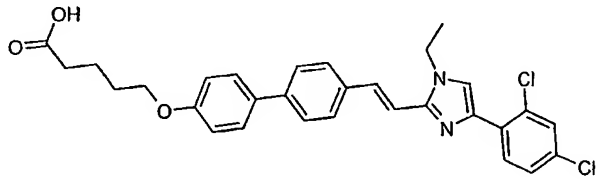
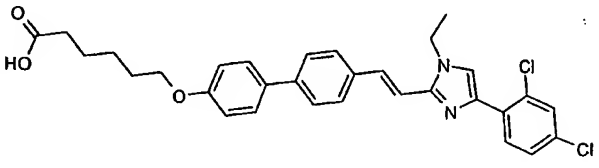
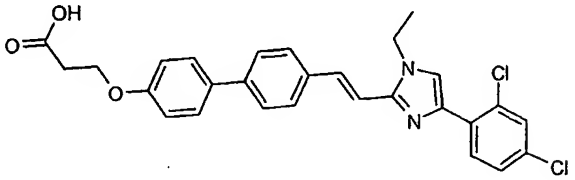
Ex.	Structure	Name
229		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-methoxy-biphenyl-4-yloxymethyl)-benzoic acid methyl ester
230		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-methoxy- biphenyl-4-yloxymethyl)-benzoic acid
231		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-methoxy- biphenyl-3-yloxymethyl)-benzoic acid methyl ester
232		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-4'-methoxy- biphenyl-3-yloxymethyl)-benzoic acid

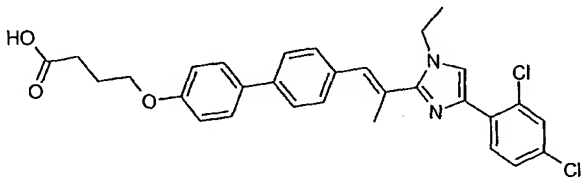
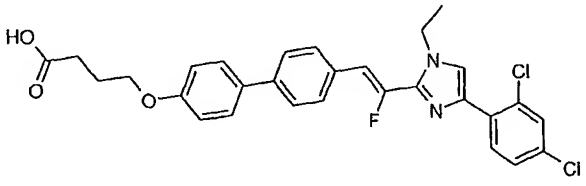
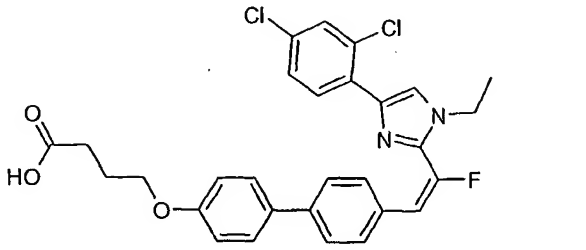
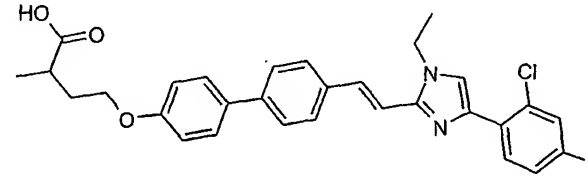
Ex.	Structure	Name
233		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-biphenyl-4-yloxymethyl)-benzoic acid methyl ester
234		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-biphenyl-4-yloxymethyl)-benzoic acid
235		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-biphenyl-3-yloxymethyl)-benzoic acid methyl ester
236		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl-}-biphenyl-3-yloxymethyl)-benzoic acid

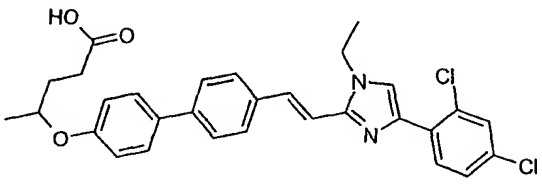
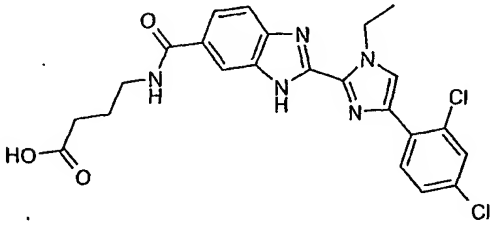
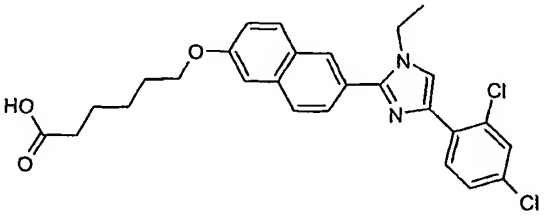
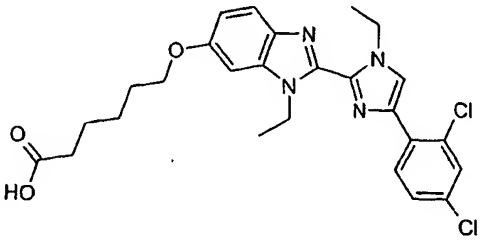
Ex.	Structure	Name
237		4-(4-(2,4-dichloro-phenyl)-2-{2-[4'-(3-methoxycarbonyl-propoxy)-biphenyl-3yl]-(E)-vinyl}-imidazol-1yl)-butyric acid methyl ester
238		4-[2-{2-[4'-(3-carboxy-propoxy)-biphenyl-3-yl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-yl]-butyric acid
239		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-methoxycarbonylmethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4yloxy)-butyric acid methyl ester
240		4-(3'-{2-[4-(2,4-dichloro-phenyl)-1-methoxycarbonylmethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4yloxy)-butyric acid

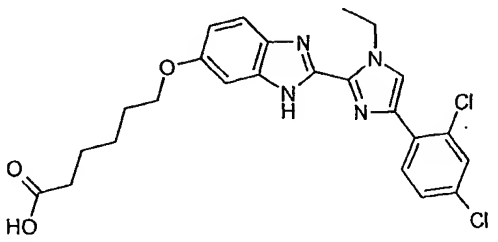
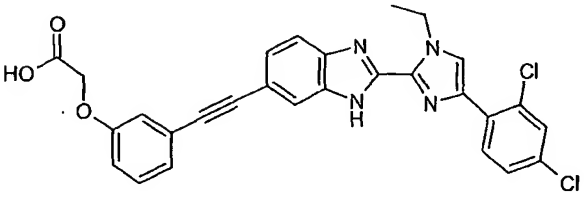
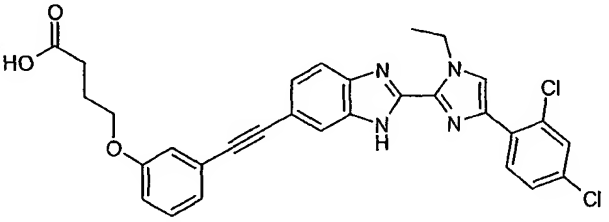
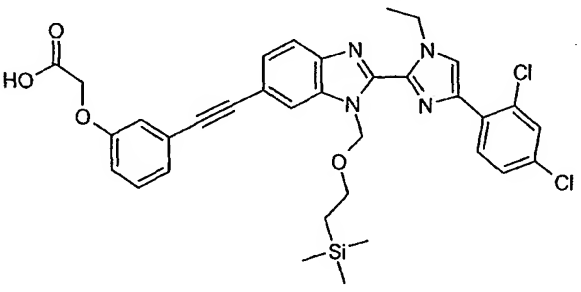
Ex.	Structure	Name
241		4-(6-{2-[4-(2,4-Dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-naphthalen-2yloxy)-butyric acid
242		2-[2-(6-benzyloxy-naphthalen-2-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazole
243		2-[2-(6-benzyloxy-naphthalen-2-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-yl]-acetic acid methyl ester
244		2-[2-(6-benzyloxy-naphthalen-2-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-yl]-acetic acid methyl ester
245		2-[2-(6-benzyloxy-naphthalen-2yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

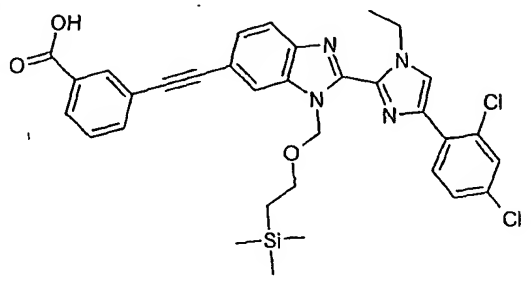
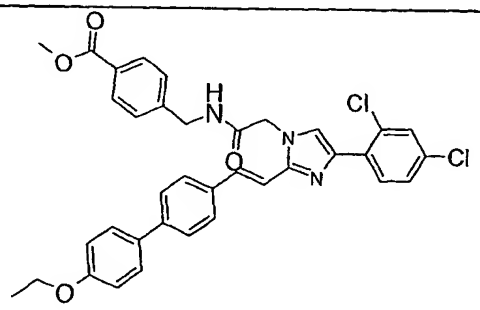
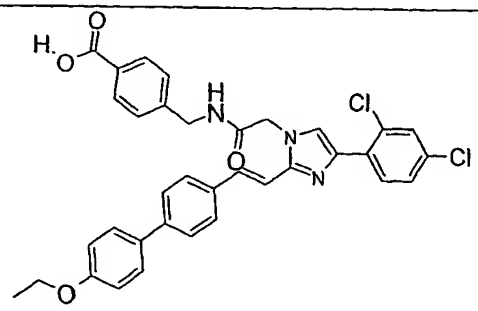
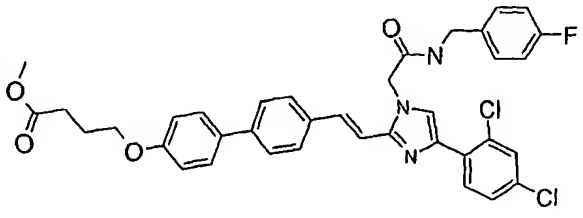
Ex.	Structure	Name
246		2-[2-(6-butoxy-naphthalen-2yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole
247		4-(3-{2-[-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
248		4-(3-{2-[-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxymethyl)-benzoic acid
249		4-(4-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-phenoxy)-benzoic acid
250		7-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-heptanoic acid

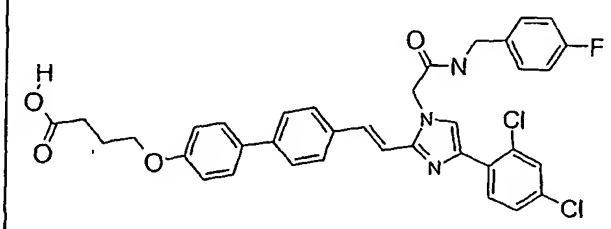
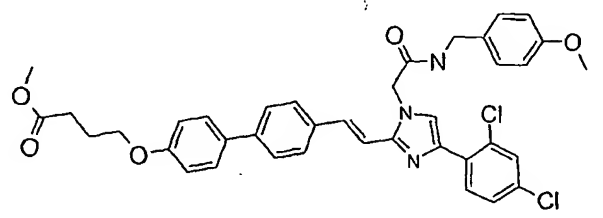
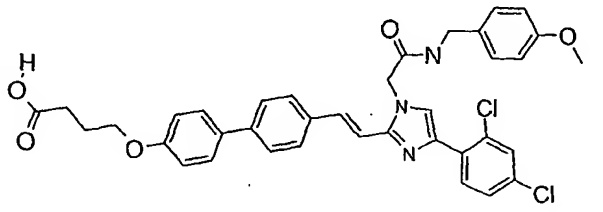
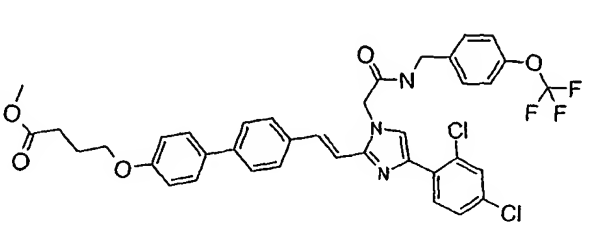
Ex.	Structure	Name
251		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-(3-methyl-butyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
252		5-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-pentanoic acid
253		6-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-hexanoic acid
254		3-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-propionic acid

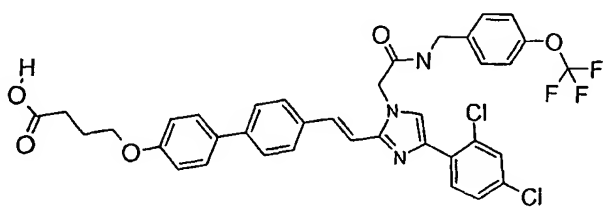
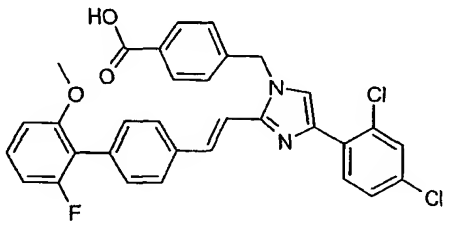
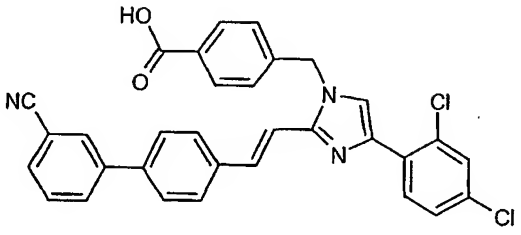
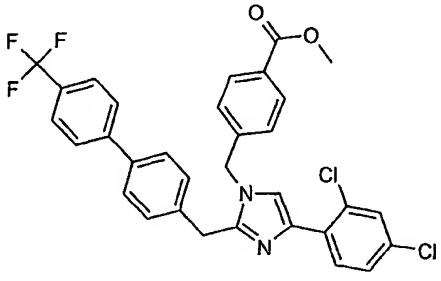
Ex.	Structure	Name
255		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-propenyl}-biphenyl-4-yloxy)-butyric acid
256		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(Z)-2-fluoro-vinyl}-biphenyl-4-yloxy)-butyric acid
257		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-2-fluorovinyl}-biphenyl-4-yloxy)-butyric acid
258		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-2-methyl-butyric acid

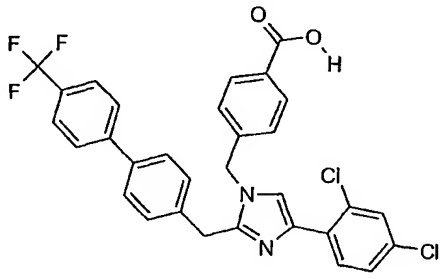
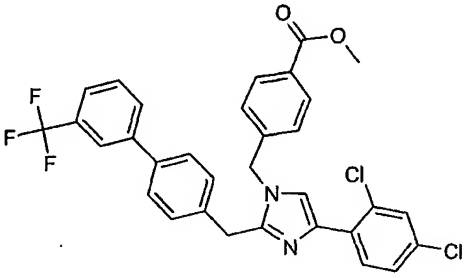
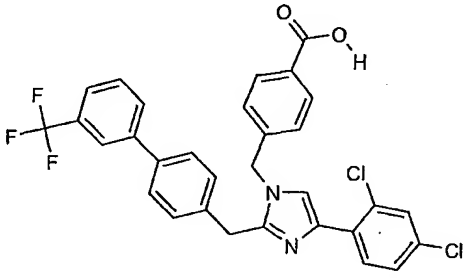
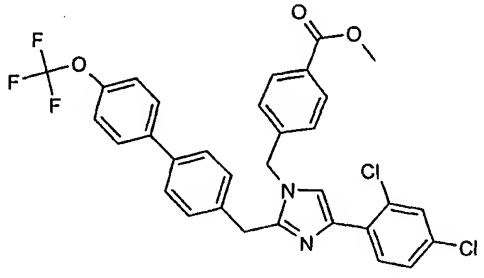
Ex.	Structure	Name
259		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-pentanoic acid
260		4-({2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3H-benzoimidazole-5-carbonyl}-amino)-butyric acid
261		6-{6-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-naphthalen-2-yloxy}-hexanoic acid
262		6-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3-ethyl-3H-benzoimidazol-5-yloxy}-hexanoic acid

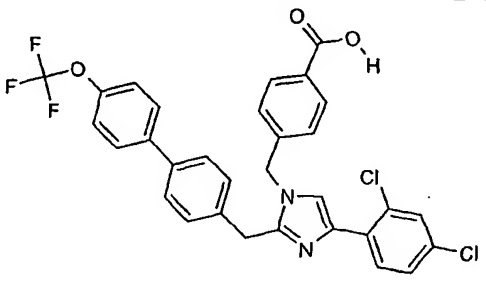
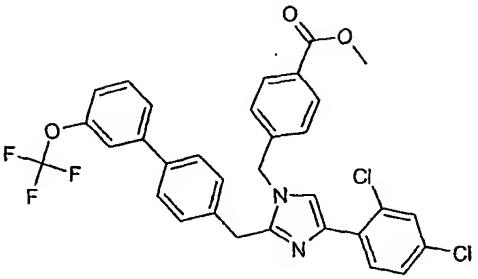
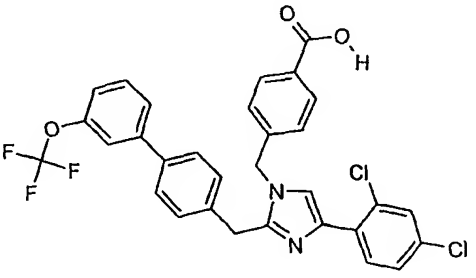
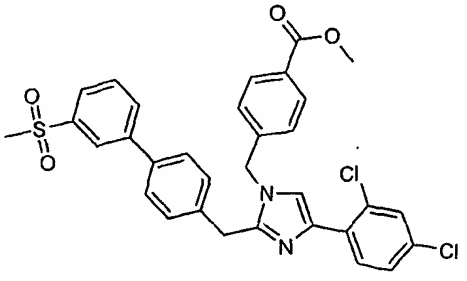
Ex.	Structure	Name
263		6-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3H-benzoimidazol-5-yloxy}-hexanoic acid
264		(3-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3H-benzoimidazol-5-ylethynyl}-phenoxy)-acetic acid
265		4-(3-{2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3H-benzoimidazol-5-ylethynyl}-phenoxy)-butyric acid
266		{3-[2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3-(2-trimethylsilanyl-ethoxymethyl)-3H-benzoimidazol-5-ylethynyl]-phenoxy}-acetic acid

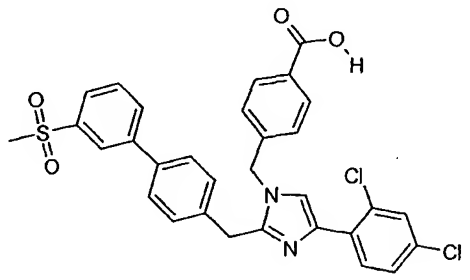
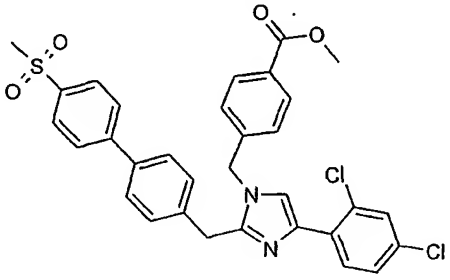
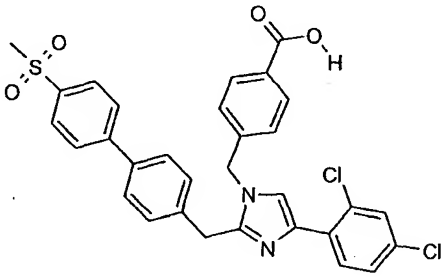
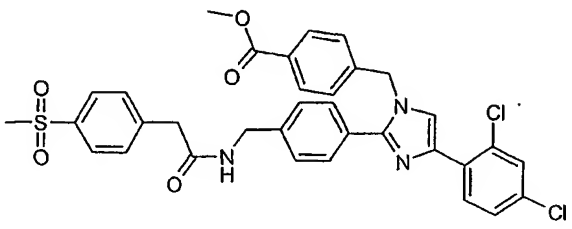
Ex.	Structure	Name
267		3-[2-[4-(2,4-dichloro-phenyl)-1-ethyl-1H-imidazol-2-yl]-3-(2-trimethylsilanyl-ethoxymethyl)-3H-benzoimidazol-5-ylethynyl]-benzoic acid
268		4-[(2-{4-(2,4-Dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-acetylamino)-methyl]-benzoic acid methyl ester
269		4-[(2-{4-(2,4-Dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-yl}-acetylamino)-methyl]-benzoic acid
270		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4-fluoro-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid methyl ester

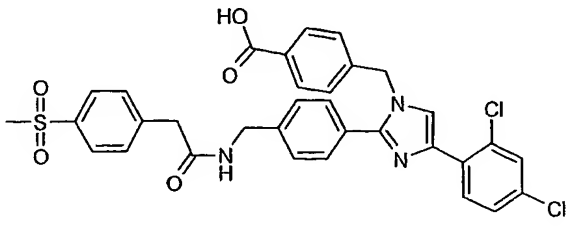
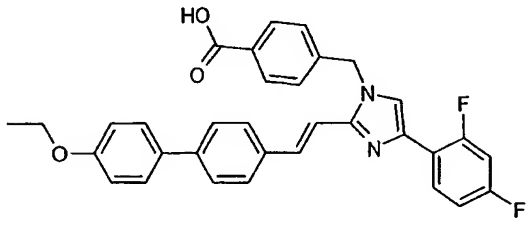
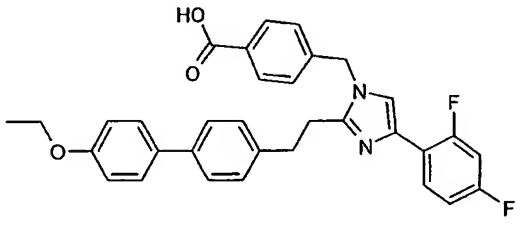
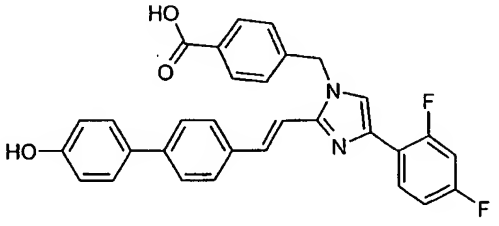
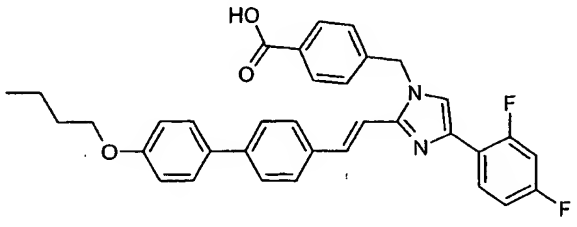
Ex.	Structure	Name
271		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4-fluoro-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid
272		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4-methoxy-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid methyl ester
273		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4-methoxy-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid
274		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4-trifluoromethoxy-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid methyl ester

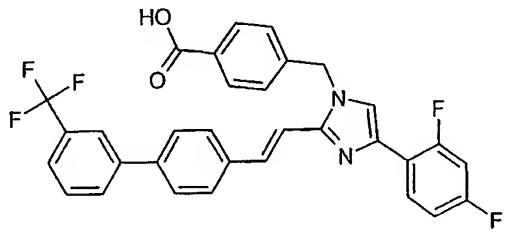
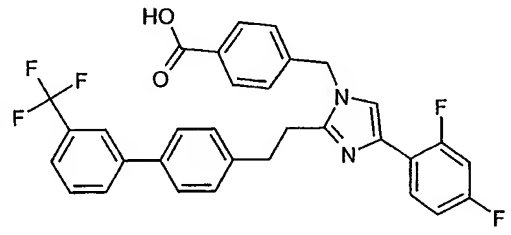
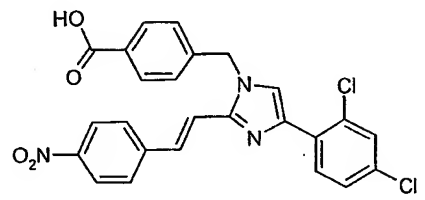
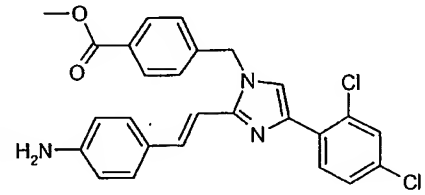
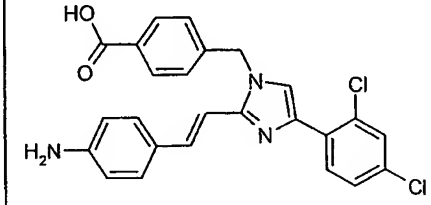
Ex.	Structure	Name
275		4-[4'-(2-{4-(2,4-Dichloro-phenyl)-1-[(4--trifluoromethoxy-benzylcarbamoyl)-methyl]-1H-imidazol-2-yl}-(E)-vinyl)-biphenyl-4-yloxy]-butyric acid
276		4-{4-(2,4-dichloro-phenyl)-2-[2-(6'-fluoro-2'-methoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
277		4-[2-[2-(3'-cyano-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
278		4-[4-(2,4-dichloro-phenyl)-2-(4'-trifluoromethyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

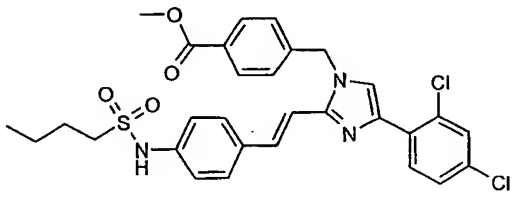
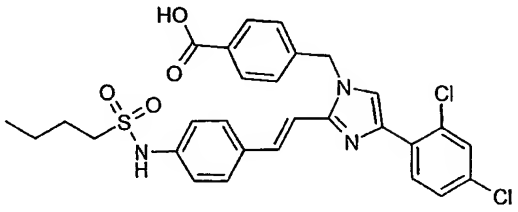
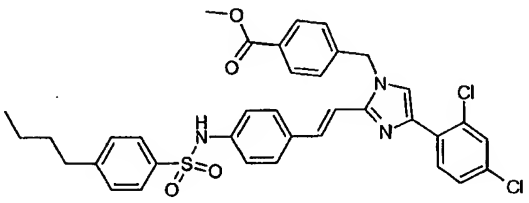
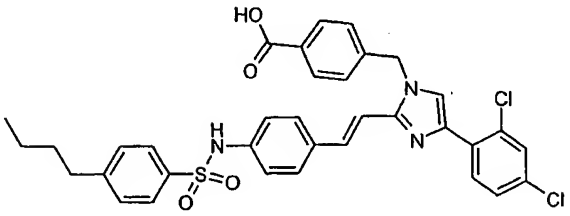
Ex.	Structure	Name
279		4-[4-(2,4-dichloro-phenyl)-2-(4'-trifluoromethyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
280		4-[4-(2,4-dichloro-phenyl)-2-(3'-trifluoromethyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
281		4-[4-(2,4-dichloro-phenyl)-2-(3'-trifluoromethyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
282		4-[4-(2,4-dichloro-phenyl)-2-(4'-trifluoromethoxy-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

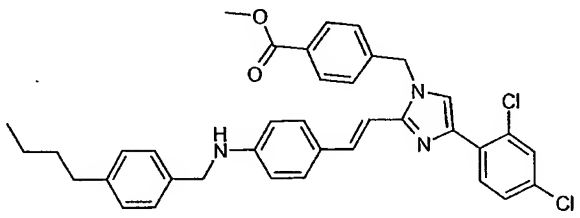
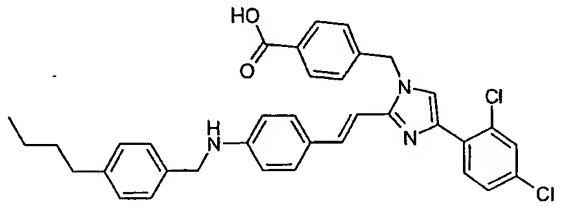
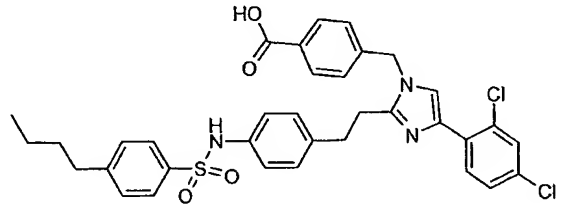
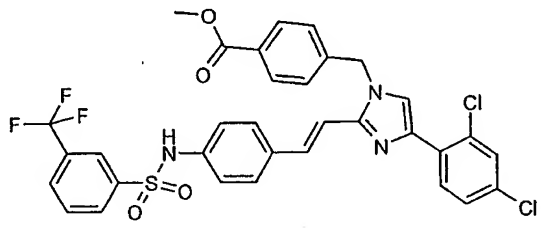
Ex.	Structure	Name
283		4-[4-(2,4-dichloro-phenyl)-2-(4'-trifluoromethoxy-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
284		4-[4-(2,4-dichloro-phenyl)-2-(3'-trifluoromethoxy-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
285		4-[4-(2,4-dichloro-phenyl)-2-(3'-trifluoromethoxy-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
286		4-[4-(2,4-dichloro-phenyl)-2-(3'-methanesulfonyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

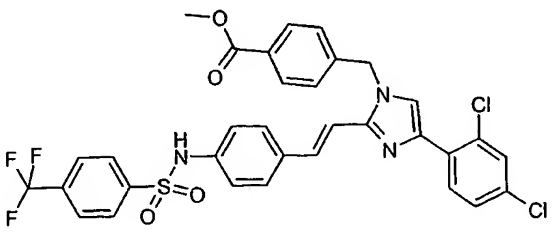
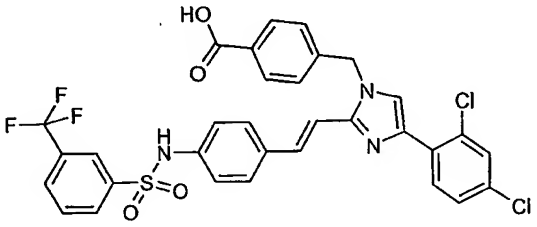
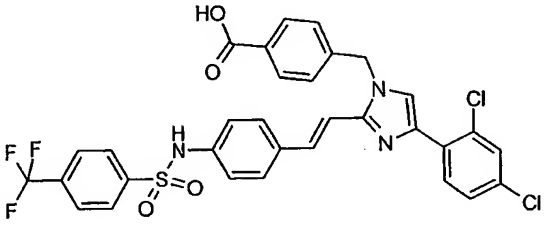
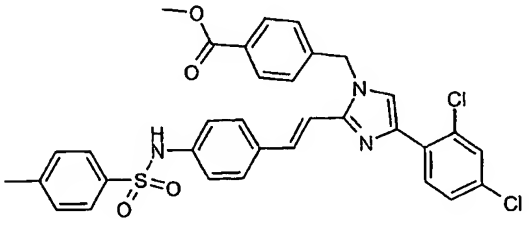
Ex.	Structure	Name
287		4-[4-(2,4-dichloro-phenyl)-2-(3'-methanesulfonyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
288		4-[4-(2,4-dichloro-phenyl)-2-(4'-methanesulfonyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
289		4-[4-(2,4-dichloro-phenyl)-2-(4'-methanesulfonyl-biphenyl-4-ylmethyl)-imidazol-1-ylmethyl]-benzoic acid
290		4-[4-(2,4-dichloro-phenyl)-2-(4-{[2-(4-methanesulfonyl-phenyl)-acetylamino]-methyl}-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

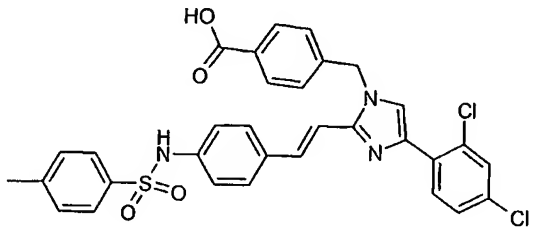
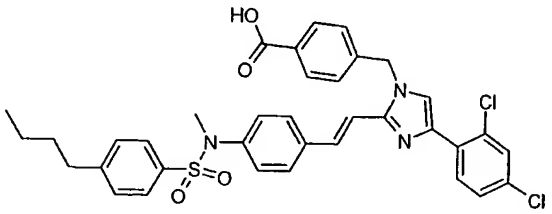
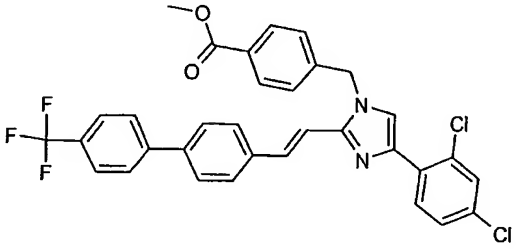
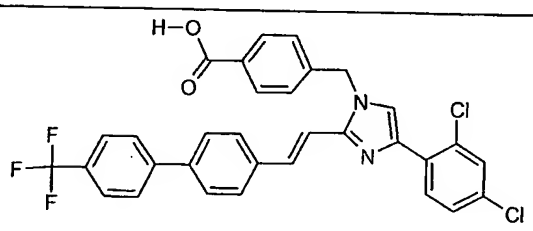
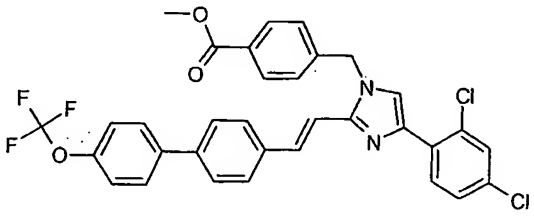
Ex.	Structure	Name
291		4-[4-(2,4-dichloro-phenyl)-2-(4-{[2-(4-methanesulfonyl-phenyl)-acetylamino]-methyl}-phenyl)-imidazol-1-ylmethyl]-benzoic acid
292		4-{4-(2,4-difluoro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
293		4-{4-(2,4-difluoro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-ethyl]-imidazol-1-ylmethyl}-benzoic acid
294		4-{4-(2,4-difluoro-phenyl)-2-[2-(4'-hydroxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
295		4-[2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-difluoro-phenyl)-imidazol-1-ylmethyl]-benzoic acid

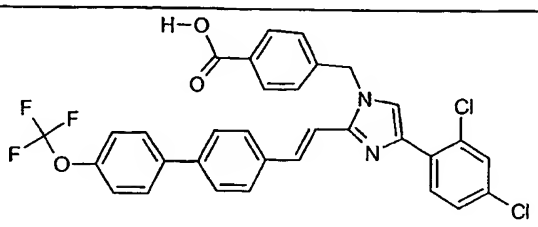
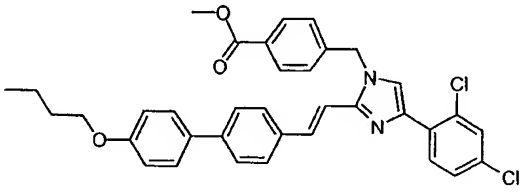
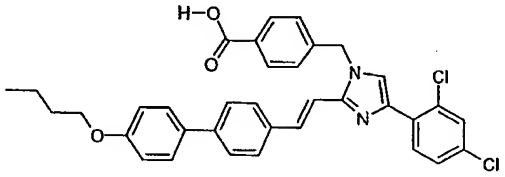
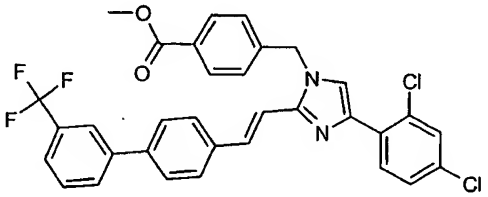
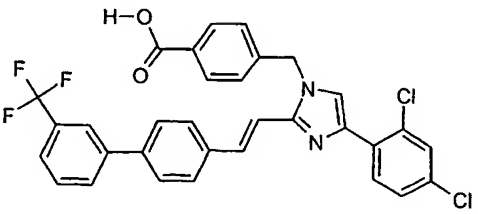
Ex.	Structure	Name
296		4-{4-(2,4-difluoro-phenyl)-2-[2-(3'-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
297		4-{4-(2,4-difluoro-phenyl)-2-[2-(3'-trifluoromethyl-biphenyl-4-yl)-ethyl]-imidazol-1-ylmethyl}-benzoic acid
298		4-{4-(2,4-dichloro-phenyl)-2-[2-(4-nitro-phenyl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
299		4-[2-[2-(4-amino-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
300		4-[2-[2-(4-amino-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid

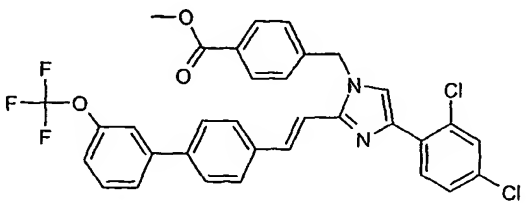
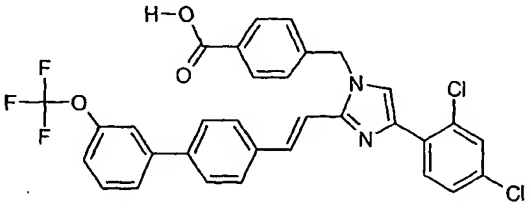
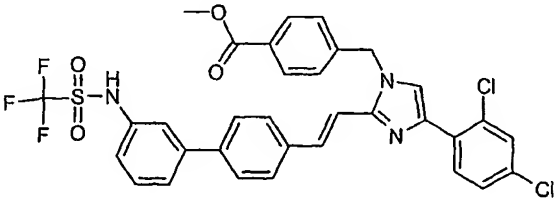
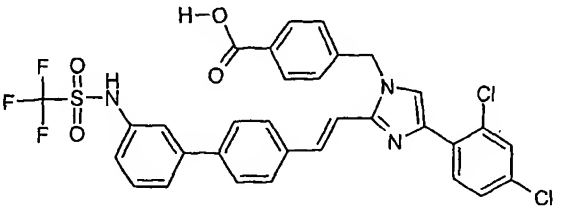
Ex.	Structure	Name
301		4-[2-{2-[4-(butane-1-sulfonylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
302		4-[2-{2-[4-(butane-1-sulfonylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
303		4-[2-{2-[4-(4-butyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
304		4-[2-{2-[4-(4-butyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid

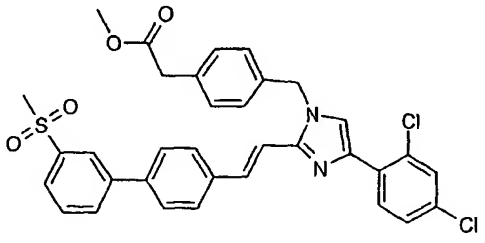
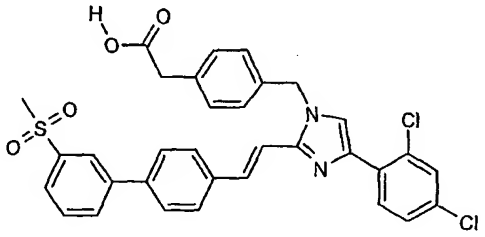
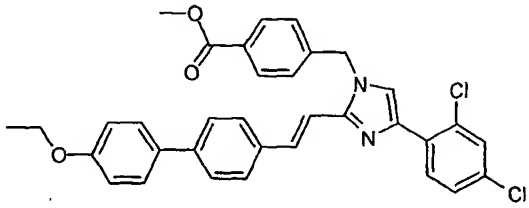
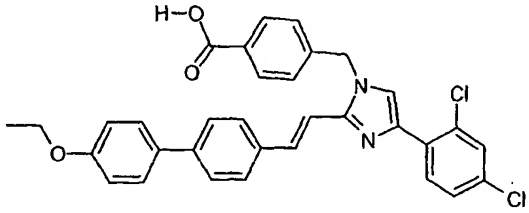
Ex.	Structure	Name
305		4-[2-{2-[4-(4-butyl-benzylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
306		4-[2-{2-[4-(4-butyl-benzylamino)-phenyl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
307		4-[2-{2-[4-(4-butyl-benzenesulfonylamino)-phenyl]-ethyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
308		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(3-trifluoromethyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester

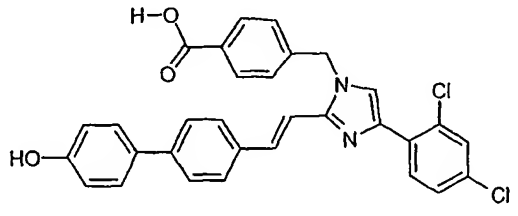
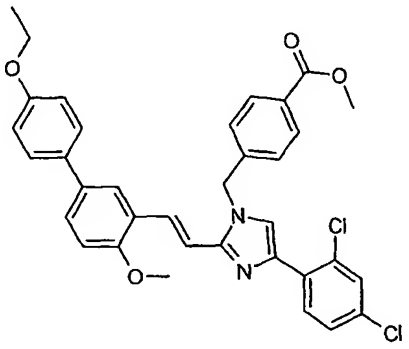
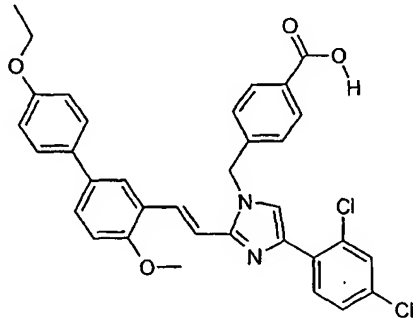
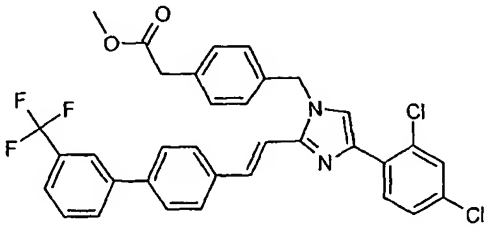
Ex.	Structure	Name
309		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(4-trifluoromethyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester
310		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(3-trifluoromethyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
311		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(4-trifluoromethyl-benzenesulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
312		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(toluene-4-sulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester

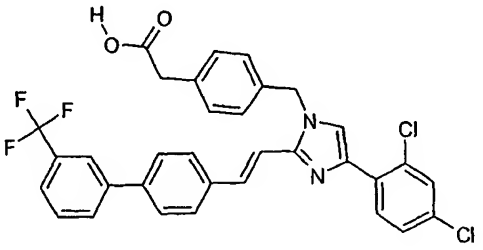
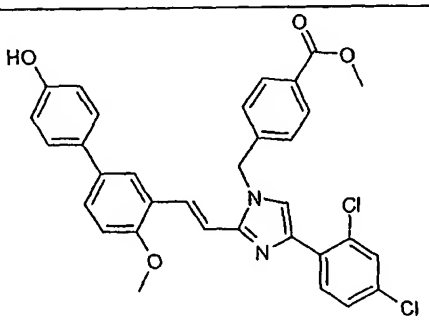
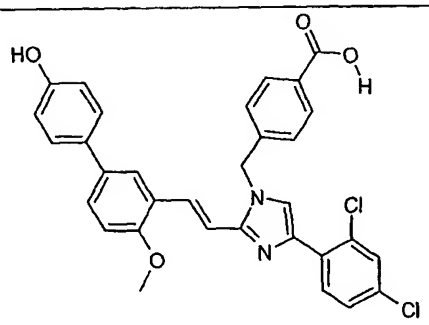
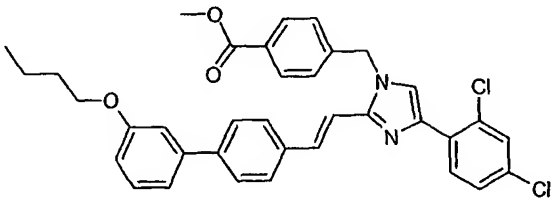
Ex.	Structure	Name
313		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(toluene-4-sulfonylamino)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
314		4-[2-(2-{4-[(4-butyl-benzenesulfonyl)-methyl-amino]-phenyl}-(E)-vinyl)-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
315		4-{4-(2,4-dichloro-phenyl)-2-[2-(4`-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1yl-methyl} benzoic acid methyl ester
316		4-{4-(2,4-dichloro-phenyl)-2[2-(4`-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
317		4-{4-(2,4-dichloro-phenyl)-2-[2-(4`-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1yl-methyl} benzoic acid methyl ester

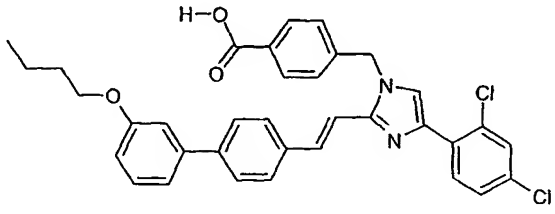
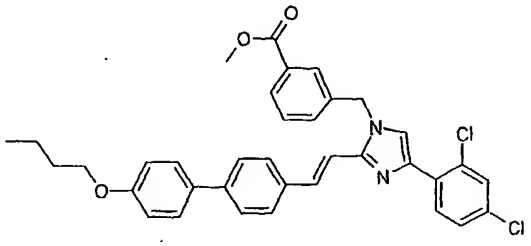
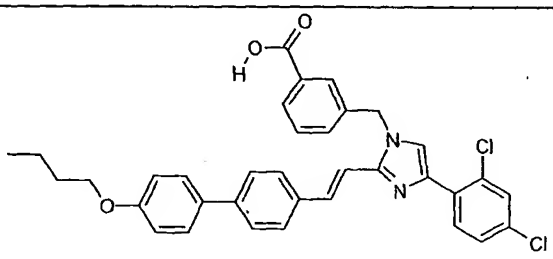
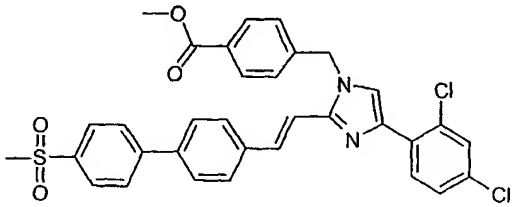
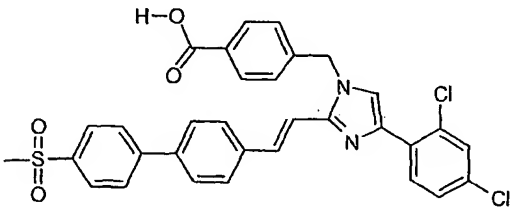
Ex.	Structure	Name
318		4-{4-(2,4-dichloro-phenyl)-2[2-(4`-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
319		4-[2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
320		4-[2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
321		4-{4-(2,4-dichloro-phenyl)-2-[2-(3`-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1yl-methyl} benzoic acid methyl ester
322		4-{4-(2,4-dichloro-phenyl)-2[2-(3`-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid

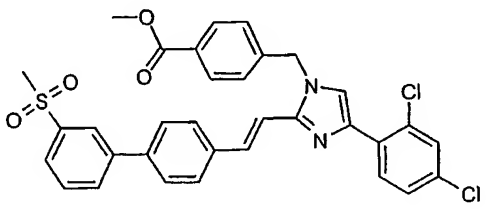
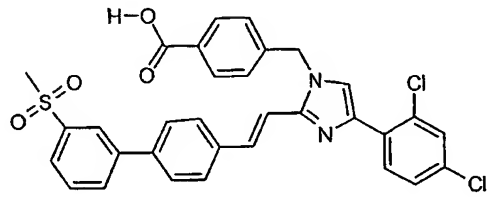
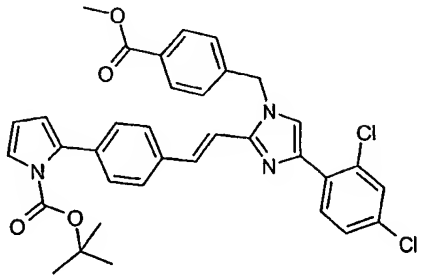
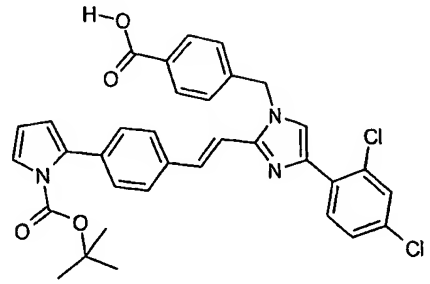
Ex.	Structure	Name
323		4-{4-(2,4-dichloro-phenyl)-2-[2-(3`-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1yl-methyl} benzoic acid methyl ester
324		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-trifluoromethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
325		4-{4-(2,4-dichloro-phenyl)-2[2-(3-trifluoromethanesulfonyl amino-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
326		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-trifluoromethanesulfonyl amino-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid

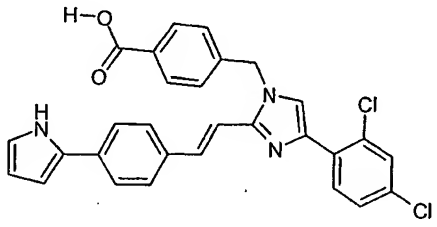
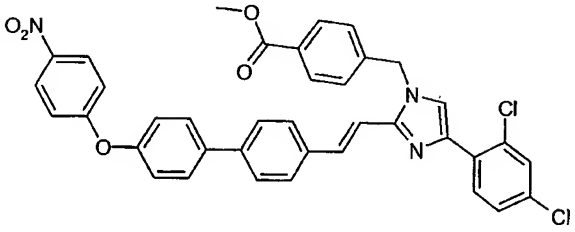
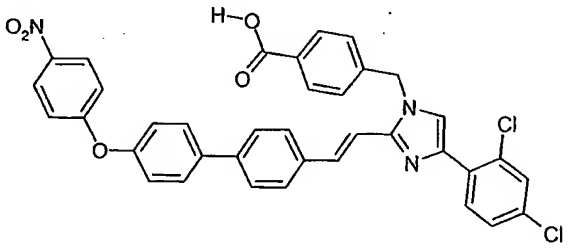
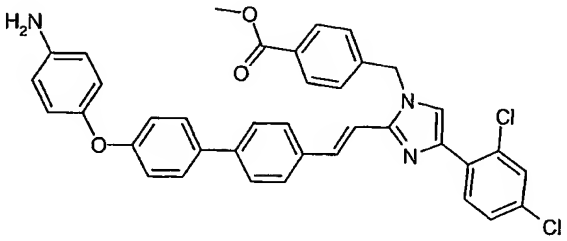
Ex.	Structure	Name
327		(4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-phenyl)-acetic acid methyl ester
328		(4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-phenyl)-acetic acid
329		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
330		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-ethoxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid

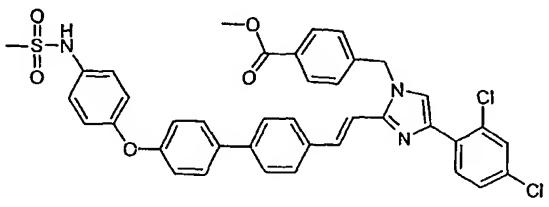
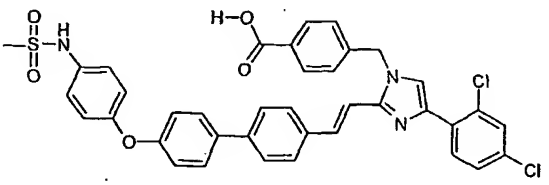
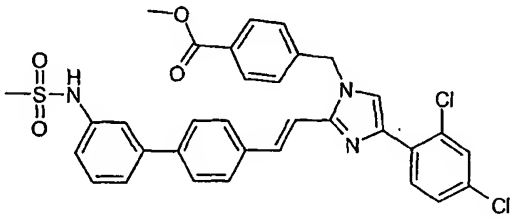
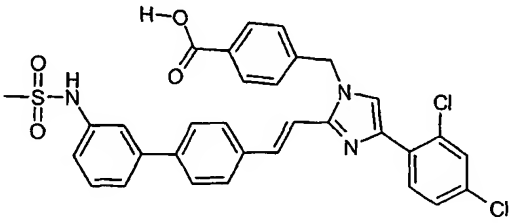
Ex.	Structure	Name
331		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-hydroxy-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
332		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-ethoxy-4-methoxy-biphenyl-3-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
333		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-ethoxy-4-methoxy-biphenyl-3-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
334		(4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-phenyl)-acetic acid methyl ester

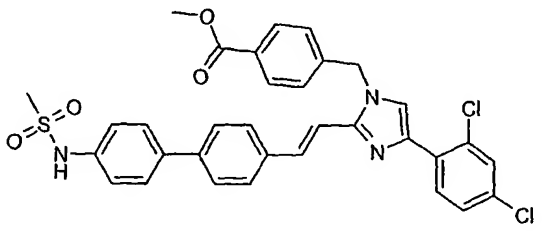
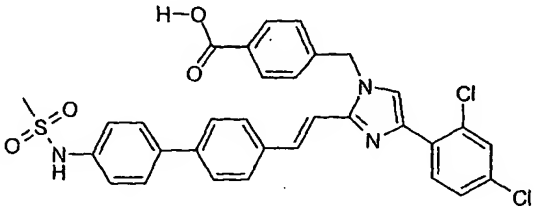
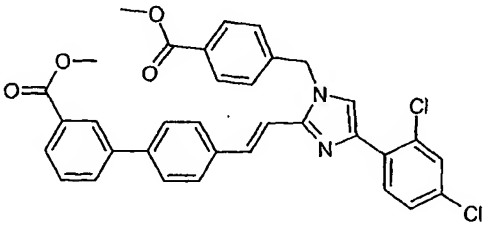
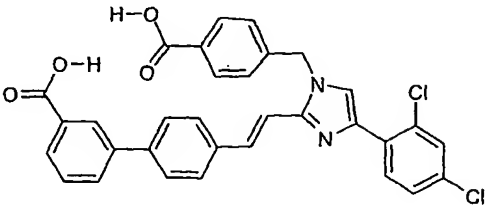
Ex.	Structure	Name
335		(4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-phenyl)-acetic acid
336		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-hydroxy-4-methoxy-biphenyl-3-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
337		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-hydroxy-4-methoxy-biphenyl-3-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
338		4-[2-[2-(3'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

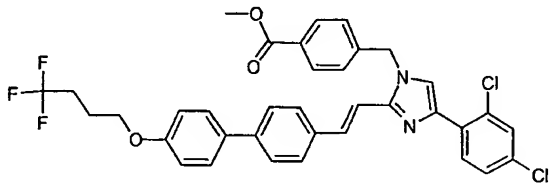
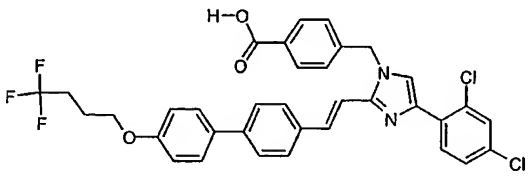
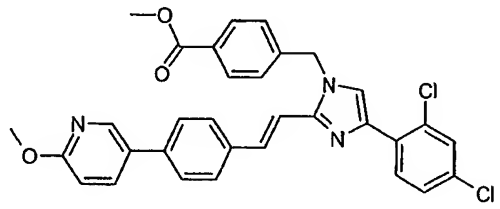
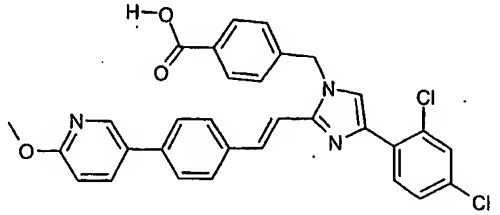
Ex.	Structure	Name
339		4-[2-[2-(3'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
340		3-[2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
341		3-[2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
342		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
343		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid

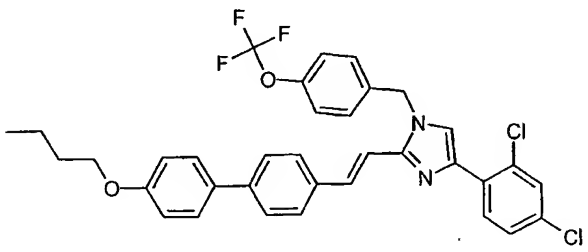
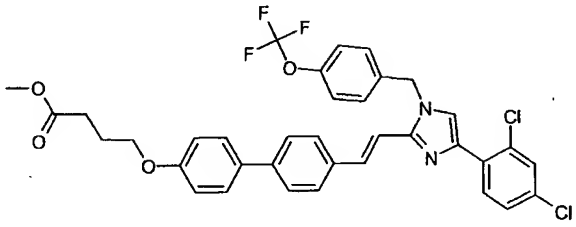
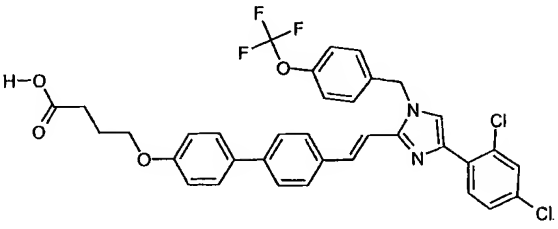
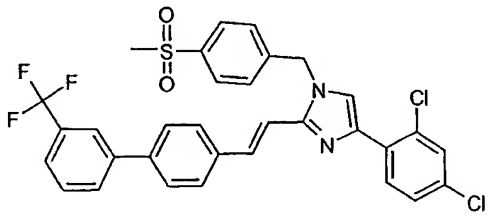
Ex.	Structure	Name
344		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
345		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
346		2-(4-{2-[4-(2,4-dichloro-phenyl)-1-(4-methoxycarbonyl-benzyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenyl)-pyrrole-1-carboxylic acid tert-butyl ester
347		2-(4-{2-[1-(4-carboxy-benzyl)-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-phenyl)-pyrrole-1-carboxylic acid tert-butyl ester

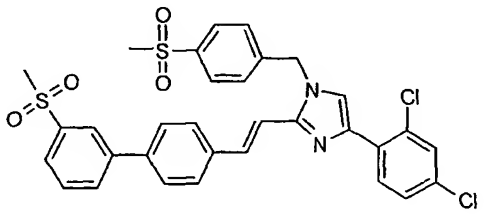
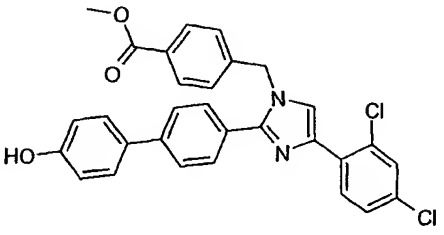
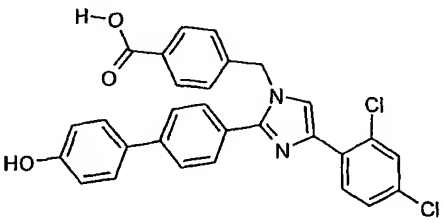
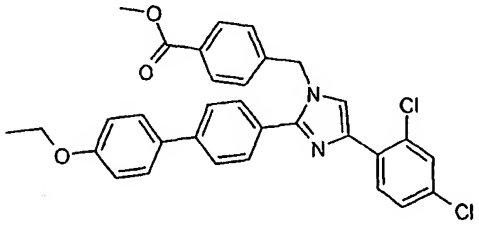
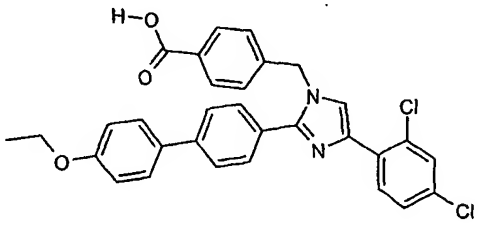
Ex.	Structure	Name
348		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(1H-pyrrol-2-yl)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
349		4-[2-{2-[4'-(4-nitro-phenoxy)-biphenyl-4-yl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
350		4-[2-{2-[4'-(4-nitro-phenoxy)-biphenyl-4-yl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid
351		4-[2-{2-[4'-(4-amino-phenoxy)-biphenyl-4-yl]-(E)-vinyl}-4-(2,4-dichloro-phenyl)-imidazol-1-ylmethyl]-benzoic acid methyl ester

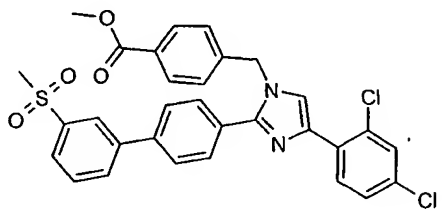
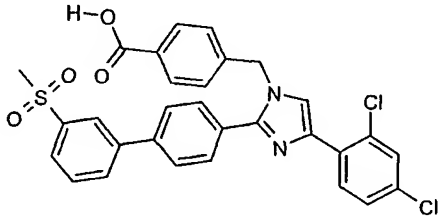
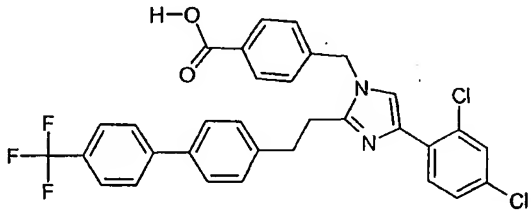
Ex.	Structure	Name
352		4-(4-(2,4-dichloro-phenyl)-2-{2-[4'-(4-methanesulfonylamino-phenoxy)-biphenyl-4-yl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester
353		4-(4-(2,4-dichloro-phenyl)-2-{2-[4'-(4-methanesulfonylamino-phenoxy)-biphenyl-4-yl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
354		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonylamino-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
355		4-{4-(2,4-dichloro-phenyl)-2-[2-(3'-methanesulfonylamino-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid

Ex.	Structure	Name
356		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-methanesulfonylamino-biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid methyl ester
357		4-{4-(2,4-Dichloro-phenyl)-2-[2-(4'-methanesulfonylamino - biphenyl-4-yl)-(E)-vinyl]-imidazol-1-ylmethyl}-benzoic acid
358		4'-{2-[4-(2,4-dichloro-phenyl)-1-(4-methoxycarbonyl-benzyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-3-carboxylic acid methyl ester
359		4'-{2-[1-(4-carboxy-benzyl)-4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-3-carboxylic acid

Ex.	Structure	Name
360		4-(4-(2,4-dichloro-phenyl)-2-{2-[4'-(4,4,4-trifluoro-butoxy)-biphenyl-4-yl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester
361		4-(4-(2,4-dichloro-phenyl)-2-{2-[4'-(4,4,4-trifluoro-butoxy)-biphenyl-4-yl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid
362		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(6-methoxy-pyridin-3-yl)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid methyl ester
363		4-(4-(2,4-dichloro-phenyl)-2-{2-[4-(6-methoxy-pyridin-3-yl)-phenyl]-(E)-vinyl}-imidazol-1-ylmethyl)-benzoic acid

Ex.	Structure	Name
364		2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1-(4-trifluoromethoxy-benzyl)-1H-imidazole
365		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-(4-trifluoromethoxy-benzyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid methyl ester
366		4-(4'-{2-[4-(2,4-dichloro-phenyl)-1-(4-trifluoromethoxy-benzyl)-1H-imidazol-2-yl]-(E)-vinyl}-biphenyl-4-yloxy)-butyric acid
367		4-(2,4-dichloro-phenyl)-1-(4-methanesulfonyl-benzyl)-2-[2-(3'-trifluoromethyl-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

Ex.	Structure	Name
368		4-(2,4-dichloro-phenyl)-1-(4-methanesulfonyl-benzyl)-2-[2-(3'-methanesulfonyl-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole
369		4-[4-(2,4-dichloro-phenyl)-2-(4'-hydroxy-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
370		4-[4-(2,4-dichloro-phenyl)-2-(4'-hydroxy-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid
371		4-[4-(2,4-dichloro-phenyl)-2-(4'-ethoxy-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
372		4-[4-(2,4-dichloro-phenyl)-2-(4'-ethoxy-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid

Ex.	Structure	Name
373		4-[4-(2,4-dichloro-phenyl)-2-(3'-methanesulfonyl-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid methyl ester
374		4-[4-(2,4-dichloro-phenyl)-2-(3'-methanesulfonyl-biphenyl-4-yl)-imidazol-1-ylmethyl]-benzoic acid
375		4-{4-(2,4-dichloro-phenyl)-2-[2-(4'-trifluoromethyl-biphenyl-4-yl)-ethyl]-imidazol-1-ylmethyl}-benzoic acid

In the structures listed above, it is understood that where a heteroatom such as nitrogen or oxygen has an unfilled valence, a covalent bond exists between a hydrogen and the heteroatom.

In another aspect, the present invention comprises a pharmaceutical composition comprising the compound of Formula (I) and one or more pharmaceutically acceptable carriers, excipients, or diluents.

As used herein, the term "lower" refers to a group having between one and six carbons.

As used herein, the term "alkyl" refers to a straight or branched chain hydrocarbon having from one to ten carbon atoms, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkyl" group may containing one or more O, S, S(O), or $S(O)_2$ atoms. Examples of "alkyl" as used herein include, but are not limited to, methyl, n-butyl, t-butyl, n-pentyl, isobutyl, and isopropyl, and the like.

As used herein, the term "alkylene" refers to a straight or branched chain divalent hydrocarbon radical having from one to ten carbon atoms, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkylene" group may containing one or more O, S, S(O), or $S(O)_2$ atoms. Examples of "alkylene" as used herein include, but are not limited to, methylene, ethylene, and the like.

As used herein, the term "alkenyl" refers to a hydrocarbon radical having from two to ten carbons and at least one carbon - carbon double bond, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkenyl" group may containing one or more O, S, S(O), or $S(O)_2$ atoms.

As used herein, the term "alkenylene" refers to a straight or branched chain divalent hydrocarbon radical having from two to ten carbon atoms and one or more carbon - carbon double bonds, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally

substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkenylene" group may containing one or more O, S, S(O), or $S(O)_2$ atoms. Examples of "alkenylene" as used herein include, but are not limited to, ethene-1,2-diyl, propene-1,3-diyl, methylene-1,1-diyl, and the like.

As used herein, the term "alkynyl" refers to a hydrocarbon radical having from two to ten carbons and at least one carbon - carbon triple bond, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkynyl" group may containing one or more O, S, S(O), or $S(O)_2$ atoms.

As used herein, the term "alkynylene" refers to a straight or branched chain divalent hydrocarbon radical having from two to ten carbon atoms and one or more carbon - carbon triple bonds, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such an "alkynylene" group may containing one or more O, S, S(O), or $S(O)_2$ atoms. Examples of "alkynylene" as used herein include, but are not limited to, ethyne-1,2-diyl, propyne-1,3-diyl, and the like.

As used herein, "cycloalkyl" refers to an alicyclic hydrocarbon group optionally possessing one or more degrees of unsaturation, having from three to twelve carbon atoms, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. "Cycloalkyl" includes by way

of example cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, or cyclooctyl, and the like.

As used herein, the term "cycloalkylene" refers to an non-aromatic alicyclic divalent hydrocarbon radical having from three to twelve carbon atoms and optionally possessing one or more degrees of unsaturation, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Examples of "cycloalkylene" as used herein include, but are not limited to, cyclopropyl-1,1-diyl, cyclopropyl-1,2-diyl, cyclobutyl-1,2-diyl, cyclopentyl-1,3-diyl, cyclohexyl-1,4-diyl, cycloheptyl-1,4-diyl, or cyclooctyl-1,5-diyl, and the like.

As used herein, the term "heterocyclic" or the term "heterocyclyl" refers to a three to twelve-membered heterocyclic ring optionally possessing one or more degrees of unsaturation, containing one or more heteroatomic substitutions selected from S, SO, SO_2, O, or N, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such a ring may be optionally fused to one or more of another "heterocyclic" ring(s) or cycloalkyl ring(s). Examples of "heterocyclic" include, but are not limited to, tetrahydrofuran, 1,4-dioxane, 1,3-dioxane, piperidine, pyrrolidine, morpholine, piperazine, and the like.

As used herein, the term "heterocyclylene" refers to a three to twelve-membered heterocyclic ring diradical optionally having one or more degrees of unsaturation containing one or more heteroatoms selected from S, SO, SO_2, O, or N, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Such a ring may be optionally fused to one or more benzene rings or to one or more of another "heterocyclic" rings or cycloalkyl rings. Examples of "heterocyclylene" include, but are not limited to, tetrahydrofuran-2,5-diyl, morpholine-2,3-diyl, pyran-2,4-diyl, 1,4-dioxane-2,3-diyl, 1,3-dioxane-2,4-diyl, piperidine-2,4-

diyl, piperidine-1,4-diyl, pyrrolidine-1,3-diyl, morpholine-2,4-diyl, piperazine-1,4-diyl, and the like.

As used herein, the term "aryl" refers to a benzene ring or to an optionally substituted benzene ring system fused to one or more optionally substituted benzene rings, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, tetrazolyl, alkoxycarbonylamino optionally substituted by alkyl, acylamino optionally substituted by alkyl, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, acyl, aroyl, heteroaroyl, acyloxy, aroyloxy, heteroaroyloxy, alkoxycarbonyl, aryloxycarbonyl, trialkylsilylalkyloxyalkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Examples of aryl include, but are not limited to, phenyl, 2-naphthyl, 1-naphthyl, 1-anthracenyl, and the like.

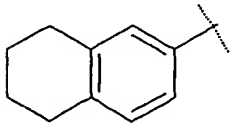
As used herein, the term "arylene" refers to a benzene ring diradical or to a benzene ring system diradical fused to one or more optionally substituted benzene rings, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, tetrazolyl, alkoxycarbonylamino optionally substituted by alkyl, acylamino optionally substituted by alkyl, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, acyl, aroyl, heteroaroyl, acyloxy, aroyloxy, heteroaroyloxy, alkoxycarbonyl, aryloxycarbonyl, trialkylsilylalkyloxyalkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. Examples of "arylene" include, but are not limited to, benzene-1,4-diyl, naphthalene-1,8-diyl, and the like.

As used herein, the term "heteroaryl" refers to a five - to seven - membered aromatic ring, or to a polycyclic heterocyclic aromatic ring, containing one or more nitrogen, oxygen, or sulfur heteroatoms, where N-oxides and sulfur monoxides and sulfur dioxides are permissible heteroaromatic substitutions, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, tetrazolyl, alkoxycarbonylamino optionally substituted by alkyl, acylamino optionally substituted by alkyl, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally

substituted by alkyl, acyl, aroyl, heteroaroyl, acyloxy, aroyloxy, heteroaroyloxy, alkoxycarbonyl, aryloxycarbonyl, trialkylsilylalkyloxyalkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. For polycyclic aromatic ring systems, one or more of the rings may contain one or more heteroatoms. Examples of "heteroaryl" used herein are furan, thiophene, pyrrole, imidazole, pyrazole, triazole, tetrazole, thiazole, oxazole, isoxazole, oxadiazole, thiadiazole, isothiazole, pyridine, pyridazine, pyrazine, pyrimidine, quinoline, isoquinoline, quinazoline, benzofuran, benzothiophene, indole, and indazole, and the like.

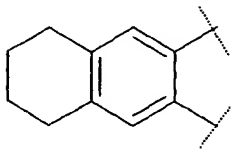
As used herein, the term "heteroarylene" refers to a five - to seven - membered aromatic ring diradical, or to a polycyclic heterocyclic aromatic ring diradical, containing one or more nitrogen, oxygen, or sulfur heteroatoms, where N-oxides and sulfur monoxides and sulfur dioxides are permissible heteroaromatic substitutions, optionally substituted with substituents selected from the group consisting of lower alkyl, lower alkoxy, lower alkylsulfanyl, lower alkylsulfenyl, lower alkylsulfonyl, oxo, hydroxy, mercapto, amino optionally substituted by alkyl, carboxy, tetrazolyl, alkoxycarbonylamino optionally substituted by alkyl, acylamino optionally substituted by alkyl, carbamoyl optionally substituted by alkyl, aminosulfonyl optionally substituted by alkyl, acyl, aroyl, heteroaroyl, acyloxy, aroyloxy, heteroaroyloxy, alkoxycarbonyl, aryloxycarbonyl, trialkylsilylalkyloxyalkyl, silyloxy optionally substituted by alkoxy, alkyl, or aryl, silyl optionally substituted by alkoxy, alkyl, or aryl, nitro, cyano, halogen, or lower perfluoroalkyl, multiple degrees of substitution being allowed. For polycyclic aromatic ring system diradicals, one or more of the rings may contain one or more heteroatoms. Examples of "heteroarylene" used herein are furan-2,5-diyl, thiophene-2,4-diyl, 1,3,4-oxadiazole-2,5-diyl, 1,3,4-thiadiazole-2,5-diyl, 1,3-thiazole-2,4-diyl, 1,3-thiazole-2,5-diyl, pyridine-2,4-diyl, pyridine-2,3-diyl, pyridine-2,5-diyl, pyrimidine-2,4-diyl, quinoline-2,3-diyl, and the like.

As used herein, the term "fused cycloalkylaryl" refers to one or more cycloalkyl groups fused to an aryl group, the aryl and cycloalkyl groups having two atoms in common, and wherein the aryl group is the point of substitution. Examples of "fused cycloalkylaryl" used herein include 5-indanyl, 5,6,7,8-tetrahydro-2-naphthyl,



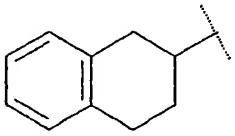
, and the like.

As used herein, the term "fused cycloalkylarylene" refers to a fused cycloalkylaryl, wherein the aryl group is divalent. Examples include



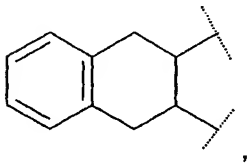
, and the like.

As used herein, the term "fused arylcycloalkyl" refers to one or more aryl groups fused to a cycloalkyl group, the cycloalkyl and aryl groups having two atoms in common, and wherein the cycloalkyl group is the point of substitution. Examples of "fused arylcycloalkyl" used herein include 1-indanyl, 2-indanyl, 9-fluorenyl, 1-(1,2,3,4-tetrahydronaphthyl),

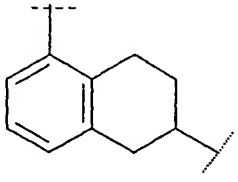


, and the like.

As used herein, the term "fused arylcycloalkylene" refers to a fused arylcycloalkyl, wherein the cycloalkyl group is divalent. Examples include 9,1-fluorenylene,

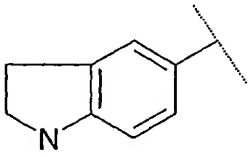


,



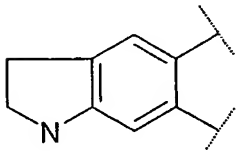
, and the like.

As used herein, the term "fused heterocyclylaryl" refers to one or more heterocyclyl groups fused to an aryl group, the aryl and heterocyclyl groups having two atoms in common, and wherein the aryl group is the point of substitution. Examples of "fused heterocyclylaryl" used herein include 3,4-methylenedioxy-1-phenyl,



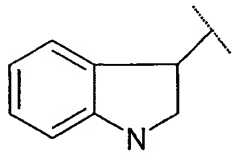
, and the like

As used herein, the term "fused heterocyclylarylene" refers to a fused heterocyclylaryl, wherein the aryl group is divalent. Examples include



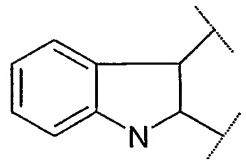
, and the like.

As used herein, the term "fused arylheterocyclyl" refers to one or more aryl groups fused to a heterocyclyl group, the heterocyclyl and aryl groups having two atoms in common, and wherein the heterocyclyl group is the point of substitution. Examples of "fused arylheterocyclyl" used herein include 2-(1,3-benzodioxolyl),



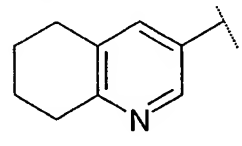
, and the like.

As used herein, the term "fused arylheterocyclylene" refers to a fused arylheterocyclyl, wherein the heterocyclyl group is divalent. Examples include



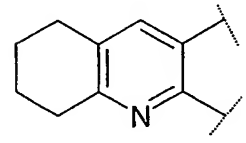
, and the like.

As used herein, the term "fused cycloalkylheteroaryl" refers to one or more cycloalkyl groups fused to a heteroaryl group, the heteroaryl and cycloalkyl groups having two atoms in common, and wherein the heteroaryl group is the point of substitution. Examples of "fused cycloalkylheteroaryl" used herein include 5-aza-6-indanyl,



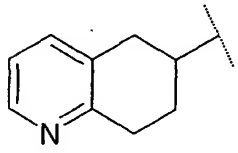
, and the like.

As used herein, the term "fused cycloalkylheteroarylene" refers to a fused cycloalkylheteroaryl, wherein the heteroaryl group is divalent. Examples include



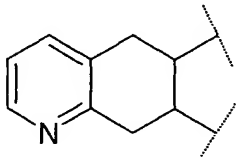
, and the like.

As used herein, the term "fused heteroarylcycloalkyl" refers to one or more heteroaryl groups fused to a cycloalkyl group, the cycloalkyl and heteroaryl groups having two atoms in common, and wherein the cycloalkyl group is the point of substitution. Examples of "fused heteroarylcycloalkyl" used herein include 5-aza-1-indanyl,



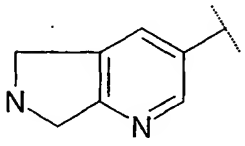
and the like.

As used herein, the term "fused heteroarylcycloalkylene" refers to a fused heteroarylcycloalkyl, wherein the cycloalkyl group is divalent. Examples include



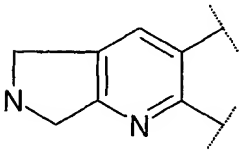
, and the like.

As used herein, the term "fused heterocyclylheteroaryl" refers to one or more heterocyclyl groups fused to a heteroaryl group, the heteroaryl and heterocyclyl groups having two atoms in common, and wherein the heteroaryl group is the point of substitution. Examples of "fused heterocyclylheteroaryl" used herein include 1,2,3,4-tetrahydro-beta-carbolin-8-yl,



and the like.

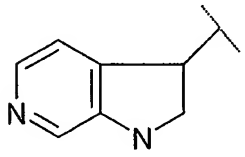
As used herein, the term "fused heterocyclylheteroarylene" refers to a fused heterocyclylheteroaryl, wherein the heteroaryl group is divalent. Examples include



, and the like.

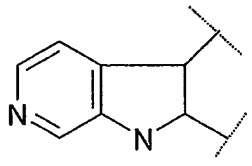
As used herein, the term "fused heteroarylheterocyclyl" refers to one or more heteroaryl groups fused to a heterocyclyl group, the heterocyclyl and heteroaryl groups having two atoms in common, and wherein the heterocyclyl group is the point of substitution.

Examples of "fused heteroarylheterocyclyl" used herein include –5-aza-2,3-dihydrobenzofuran-2-yl,



, and the like.

As used herein, the term "fused heteroarylheterocyclylene" refers to a fused heteroarylheterocyclyl, wherein the heterocyclyl group is divalent. Examples include



, and the like.

As used herein, the term "acid isostere" refers to a substituent group which will ionize at physiological pH to bear a net negative charge. Examples of such "acid isosteres" include but are not limited to heteroaryl groups such as but not limited to isoxazol-3-ol-5-yl, 1H-tetrazole-5-yl, or 2H-tetrazole-5-yl. Such acid isosteres include but are not limited to heterocyclyl groups such as but not limited to imidazolidine-2,4-dione-5-yl, imidazolidine-2,4-dione-1-yl, 1,3-thiazolidine-2,4-dione-5-yl, or 5-hydroxy-4H-pyran-4-on-2-yl.

As used herein, the term "direct bond", where part of a structural variable specification, refers to the direct joining of the substituents flanking (preceding and succeeding) the variable taken as a "direct bond". Where two or more consecutive variables are specified each as a "direct bond", those substituents flanking (preceding and succeeding) those two or more consecutive specified "direct bonds" are directly joined.

As used herein, the term "alkoxy" refers to the group R_aO-, where R_a is alkyl.

As used herein, the term "alkenyloxy" refers to the group R_aO-, where R_a is alkenyl.

As used herein, the term "alkynyloxy" refers to the group R_aO-, where R_a is alkynyl.

As used herein, the term "alkylsulfanyl" refers to the group R_aS-, where R_a is alkyl.

As used herein, the term "alkenylsulfanyl" refers to the group R_aS-, where R_a is alkenyl.

As used herein, the term "alkynylsulfanyl" refers to the group R_aS-, where R_a is alkynyl.

As used herein, the term "alkylsulfenyl" refers to the group $R_aS(O)$-, where R_a is alkyl.

As used herein, the term "alkenylsulfenyl" refers to the group $R_aS(O)$-, where R_a is alkenyl.

As used herein, the term "alkynylsulfenyl" refers to the group $R_aS(O)$-, where R_a is alkynyl.

As used herein, the term "alkylsulfonyl" refers to the group R_aSO_2-, where R_a is alkyl.

As used herein, the term "alkenylsulfonyl" refers to the group R_aSO_2-, where R_a is alkenyl.

As used herein, the term "alkynylsulfonyl" refers to the group R_aSO_2-, where R_a is alkynyl.

As used herein, the term "acyl" refers to the group $R_aC(O)$- , where R_a is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, or heterocyclyl.

As used herein, the term "aroyl" refers to the group $R_aC(O)$- , where R_a is aryl.

As used herein, the term "heteroaroyl" refers to the group $R_aC(O)$- , where R_a is heteroaryl.

As used herein, the term "alkoxycarbonyl" refers to the group $R_aOC(O)$-, where R_a is alkyl.

As used herein, the term "acyloxy" refers to the group $R_aC(O)O$- , where R_a is alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, or heterocyclyl.

As used herein, the term "aroyloxy" refers to the group $R_aC(O)O$- , where R_a is aryl.

As used herein, the term "heteroaroyloxy" refers to the group $R_aC(O)O-$, where R_a is heteroaryl.

As used herein, the term "optionally" means that the subsequently described event(s) may or may not occur, and includes both event(s) which occur and events that do not occur.

As used herein, the term "substituted" refers to substitution with the named substituent or substituents, multiple degrees of substitution being allowed unless otherwise stated.

As used herein, the terms "contain" or "containing" can refer to in-line substitutions at any position along the above defined alkyl, alkenyl, alkynyl or cycloalkyl substituents with one or more of any of O, S, SO, SO_2, N, or N-alkyl, including, for example, $-CH_2-O-CH_2-$, $-CH_2-SO_2-CH_2-$, $-CH_2-NH-CH_3$ and so forth.

Whenever the terms "alkyl" or "aryl" or either of their prefix roots appear in a name of a substituent (e.g. arylalkoxyaryloxy) they shall be interpreted as including those limitations given above for "alkyl" and "aryl". Alkyl or cycloalkyl substituents shall be recognized as being functionally equivalent to those having one or more degrees of unsaturation. Designated numbers of carbon atoms (*e.g.* C_{1-10}) shall refer independently to the number of carbon atoms in an alkyl, alkenyl or alkynyl or cyclic alkyl moiety or to the alkyl portion of a larger substituent in which the term "alkyl" appears as its prefix root.

As used herein, the term "oxo" shall refer to the substituent =O.

As used herein, the term "halogen" or "halo" shall include iodine, bromine, chlorine and fluorine.

As used herein, the term "mercapto" shall refer to the substituent -SH.

As used herein, the term "carboxy" shall refer to the substituent -COOH.

As used herein, the term "cyano" shall refer to the substituent -CN.

As used herein, the term "aminosulfonyl" shall refer to the substituent $-SO_2NH_2$.

As used herein, the term "carbamoyl" shall refer to the substituent -C(O)NH_2.

As used herein, the term "sulfanyl" shall refer to the substituent -S-.

As used herein, the term "sulfenyl" shall refer to the substituent -S(O)-.

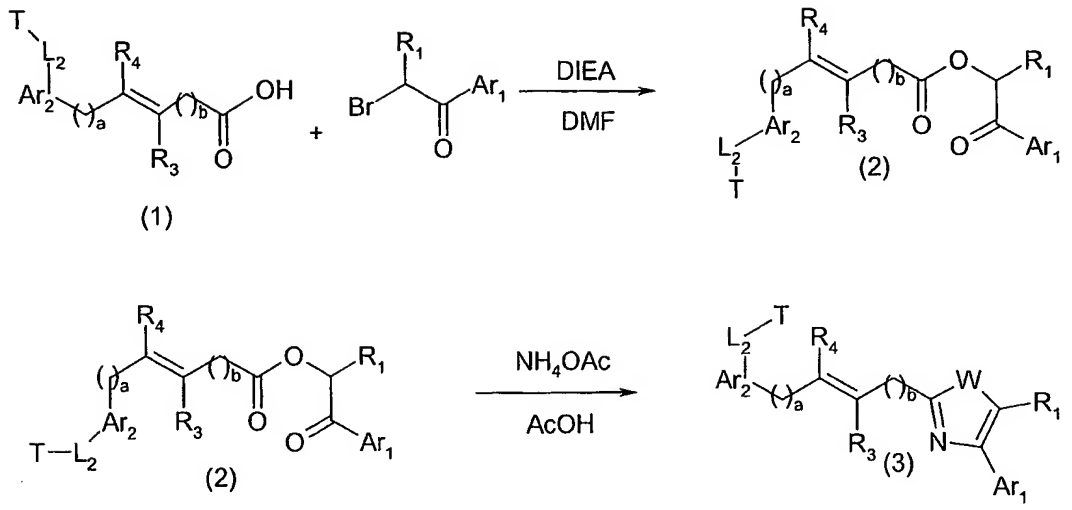
As used herein, the term "sulfonyl" shall refer to the substituent -$S(O)_2$-.

The compounds can be prepared readily according to the following reaction Schemes (in which variables are as defined before or are defined) using readily available starting materials, reagents and conventional synthesis procedures. In these reactions, it is also possible to make use of variants which are themselves known to those of ordinary skill in this art, but are not mentioned in greater detail.

The present invention also provides a method for the synthesis of compounds useful as intermediates in the preparation of compounds of Formula (I) along with methods for the preparation of compounds of Formula (I). Unless otherwise specified, structural variables are as defined for Formula (I).

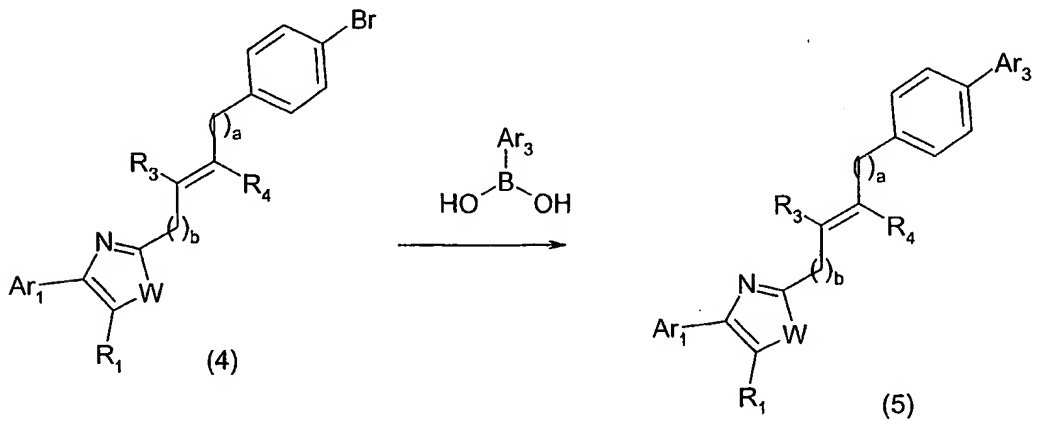
An unsaturated carboxylic acid (Scheme 1) can be reacted with aryl acyl bromides in the presence of base such as DIEA, triethyl amine, or DBU in a polar solvents such as THF, or DMF to afford intermediate keto-ester (2), which can be treated with ammonium acetate in acetic acid at temperatures ranging from 60-120° C, which leads to the corresponding mixture of oxazole (W = O) and imidazole (W = N) (3) (Strzybny, P. P. E ; van Es, T. ; Backeberg, O. G. J. Org. Chem. 1963, 25, 1151). The ratio of oxazole and imidazole may vary depending on the substitution and reaction conditions and the two compounds were separated through silica gel column. Alternatively other conditions may also be employed for cyclization of keto-esters (2), such as BF_3/Et_2O, methanolic ammonia, at temperatures ranging from room temperature to 120° C.

Scheme 1



In another embodiment, a bromo or iodo aryl compound (4) (Scheme 2) can be subjected to palladium catalyzed coupling (Syn. Commu. 1981, 11, 513-574) with an optionally substituted heteteroaryl or aryl boronic acid. Ar_3 is a group such as but not limited to a heteroaryl or aryl group. Typical conditions used to carry out the coupling reaction include the use of boronic acid or ester as the coupling partner, a palladium catalyst (2 to 20 mole %) such as $Pd(PPh_3)_4$ or [1,1-bis(diphenylphosphino)-ferrocene] dichloro-palladium (II) and base such as potassium carbonate, sodium carbonate, barium hydroxide, potassium phosphate or triethyl amine in a suitable solvent such as aqueous dimethoxyethane, THF, acetone, DMF or toluene at temperatures ranging from 25° C to 125° C. In this instance, Ar_3 is a group such as, but not limited to, an aryl or heteroaryl group.

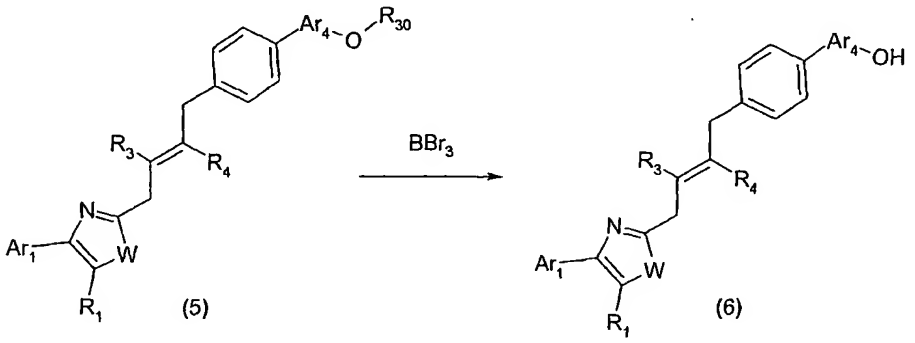
Scheme 2



In another embodiment (Scheme 3), the O-alky, or O-aryl group in compound (5) can be dealkylated or dearylated using reagents such as boron tribromide or PhSMe, in a

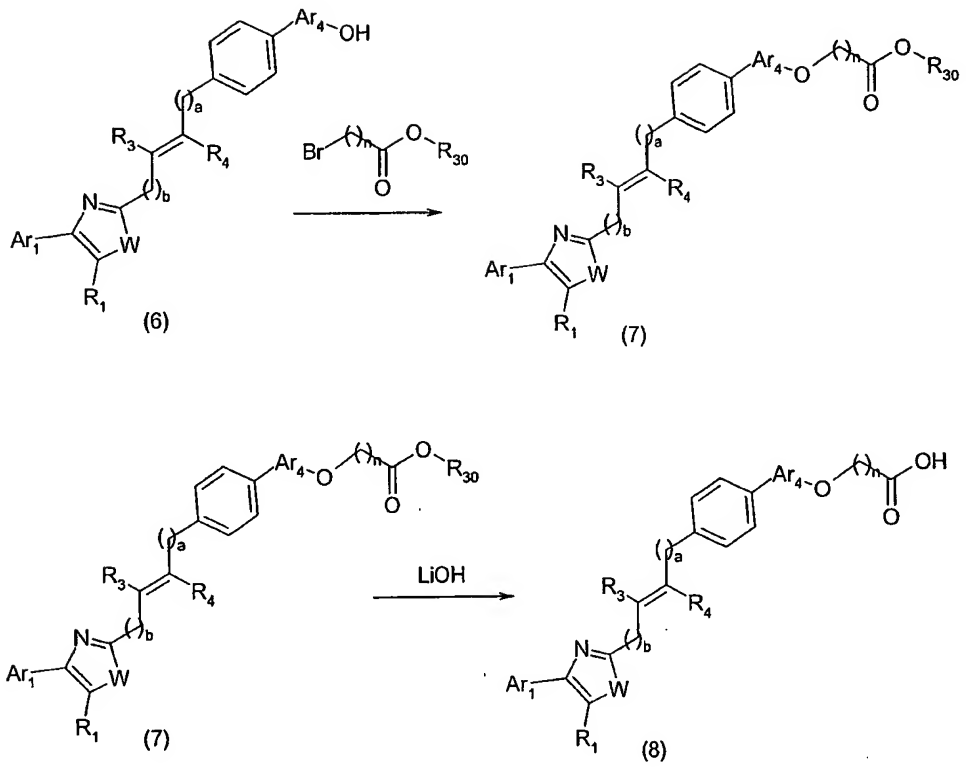
solvent such as dichloromethane or TFA, at temperatures ranging from -20°C to room temperature to afford hydroxy biphenyls (6). In this instance, Ar_4 is a group such as, but not limited to, heteryarylene or arylene, and R_{30} is a group such as, but not limited to, lower alkyl.

Scheme 3



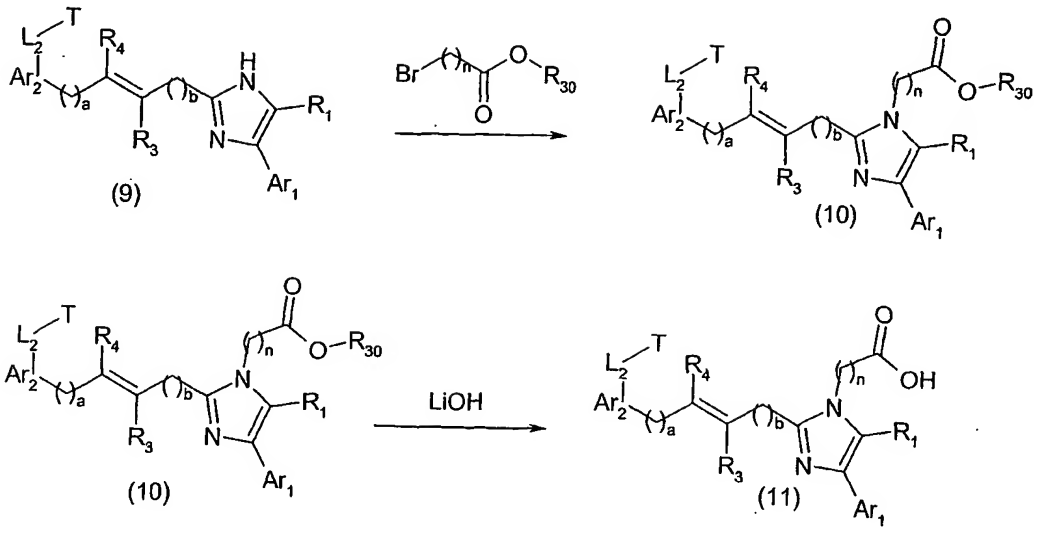
In Scheme 4, the biphenyl alcohols (5) were alkylated with bromo or chloro alkyl carboxylates [(Br or Cl)$(CH_2)_n$-CO_2-R_{30}] [where n=1 to 6] in the presence of base such as sodium hydride, potassium tert-butoxide, or potassium carbonate using DMF, THF, acetonitrile as the solvent at temperatures ranging from 50° C to 100° C. Subsequent saponification of esters (6) with bases such as sodium hydroxide, lithium hydroxide in aqueous and organic solvents such as THF, methanol, at temperatures ranging from room temperature to 60° C produces carboxylic acid (8). In this instance, R_{30} is a group such as, but not limited to, lower alkyl. In this instance, Ar_4 is a group such as, but not limited to, an arylene or heteroarylene group.

Scheme 4



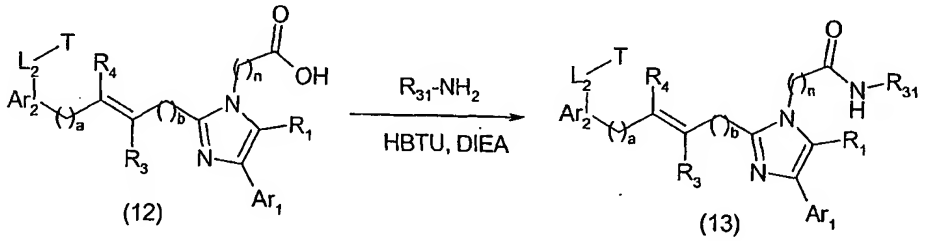
In another embodiment (Scheme 5), the imidazole nitrogen in compound (9) can be alkylated with bromo or chloro alkyl carboxylates [(Br or Cl) $(CH_2)_n$ CO_2 R_{30}] in the presence of base such as sodium hydride, potassium tert-butoxide, or potassium carbonate using DMF, THF, or acetonitrile as the solvent at temperatures ranging from 50° C to 100° C. Subsequent saponification of esters (10) with base such as sodium hydroxide, lithium hydroxide in aqueous and organic solvents such as THF, or methanol at temperatures ranging from room temperature to 60° C produces carboxylic acid (11). In this instance, R_{30} is a group such as, but not limited to, lower alkyl.

Scheme 5



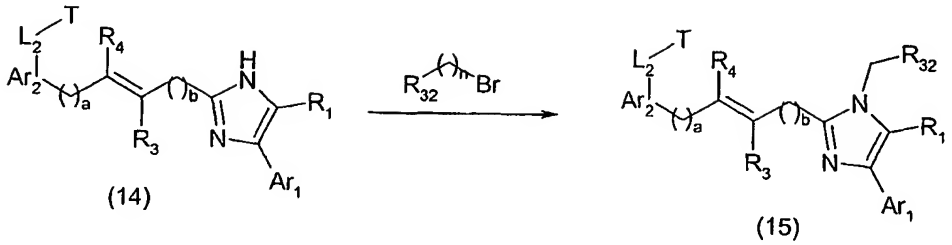
In Scheme 6 the carboxylic acids (12) can be transformed into their carboxylic acid amide analogs. This transformation can be accomplished using standard methods to effect carboxylic acid to carboxylic acid amide transformations. These methods include converting the acid to an activated acid, reacting with one or more molar equivalents of the desired amine. Methods to activate the carboxylic acid include reacting the acid with one or more molar equivalents of DIC or DIEA, with or without one or more molar equivalents of HOBt or HBTU in a suitable solvent such as dichloromethane or DMF at temperatures ranging from O° C to 40° C to afford amides (13). In this instance, R_{31} is a group such as, but not limited to, -alkyl or -alkylene-aryl.

Scheme 6



In another embodiment (Scheme 7), an imidazole nitrogen in compound (14) was alkylated with alkyl halides [(Br or Cl)$(CH_2)_n$-R_{32}] [n= 1 to 6]in the presence of base such as sodium hydride, potassium tert-butoxide, or potassium carbonate using DMF, THF, or acetonitrile as the solvent at temperatures ranging from 0° C to 80° C afford N-alkylated products (15). In this instance R_{32} is a group such as, but not limited to, –alkyl, aryl, or –alkenylene-aryl.

Scheme 7



The term "amino protecting group" as used herein refers to substituents of the amino group commonly employed to block or protect the amino functionality while reacting other functional groups on the compound. Examples of such amino-protecting groups include the formyl group, the trityl group, the phthalimido group, the trichloroacetyl group, the chloroacetyl, bromoacetyl and iodoacetyl groups, urethane-type blocking groups such as benzyloxycarbonyl, 4-phenylbenzyloxycarbonyl, 2-methylbenzyloxycarbonyl, 4-methoxybenzyloxycarbonyl, 4-fluorobenzyloxycarbonyl, 4-chlorobenzyloxycarbonyl, 3-chlorobenzyloxycarbonyl, 2-chlorobenzyloxycarbonyl, 2,4-dichlorobenzyloxycarbonyl, 4-bromobenzyloxycarbonyl, 3-bromobenzyloxycarbonyl, 4-nitrobenzyloxycarbonyl, 4-cyanobenzyloxy-carbonyl, 2-(4-xenyl)iso-propoxycarbonyl, 1,1-diphenyleth-1-yloxycarbonyl, 1,1-diphenylprop-1-yloxycarbonyl, 2-phenylprop-2-yloxycarbonyl, 2-(p-toluyl)prop-2-yloxycarbonyl, cyclopentanyloxycarbonyl, 1-methylcyclopentanyloxycarbonyl, cyclohexanyloxycarbonyl, 1-methylcyclohexanyloxycarbonyl, 2-methylcyclohexanyloxycarbonyl, 2-(4-toluylsulfonyl)ethoxycarbonyl, 2(methylsulfonyl)ethoxycarbonyl, 2-(triphenylphosphino)ethoxycarbonyl, 9-fluorenylmethoxycarbonyl ("FMOC"), t-butoxycarbonyl ("BOC"), 2-(trimethylsilyl)ethoxycarbonyl, allyloxycarbonyl, 1-(trimethylsilylmethyl)prop-1-enyloxycarbonyl, 5-benzisoxalylmethoxycarbonyl, 4-acetoxybenzyloxycarbonyl, 2,2,2-trichloroethoxycarbonyl, 2-ethynyl-2-propoxycarbonyl, cyclopropylmethoxycarbonyl, 4-(decyloxy)benzyloxycarbonyl, isobornyloxycarbonyl, 1-piperidyloxycarbonyl and the like; the benzoylmethylsulfonyl group, the 2-(nitro)phenylsulfenyl group, the diphenylphosphine oxide group and like amino-protecting groups. The species of amino-protecting group employed is not critical so long as the derivatized amino group is stable to the condition of subsequent reaction(s) on other positions of the compound of Formula (I) and can be removed at the desired point without disrupting the remainder of the molecule. In an embodiment, amino-protecting groups are the allyloxycarbonyl, the t-butoxycarbonyl, 9-fluorenylmethoxycarbonyl, and the trityl groups. Similar amino-protecting groups used in the cephalosporin, penicillin and peptide art are also embraced by the above terms. Further examples of groups referred to by the above terms are described by J. W. Barton,

"Protective Groups In Organic Chemistry", J. G. W. McOmie, Ed., Plenum Press, New York, N.Y., 1973, and T. W. Greene, "Protective Groups in Organic Synthesis", John Wiley and Sons, New York, N.Y., 1981. The related term "protected amino" or "protected amino group" defines an amino group substituted with an amino-protecting group discussed above.

The term "hydroxyl protecting group" as used herein refers to substituents of the alcohol group commonly employed to block or protect the alcohol functionality while reacting other functional groups on the compound. Examples of such alcohol -protecting groups include the 2-tetrahydropyranyl group, 2-ethoxyethyl group, the trityl group, the trichloroacetyl group, urethane-type blocking groups such as benzyloxycarbonyl, and the trialkylsilyl group, examples of such being trimethylsilyl, tert-butyldimethylsilyl, phenyldimethylsilyl, triiospropylsilyl and thexyldimethylsilyl. The choice of of alcohol-protecting group employed is not critical so long as the derivatized alcohol group is stable to the condition of subsequent reaction(s) on other positions of the compound of the formulae and can be removed at the desired point without disrupting the remainder of the molecule. Further examples of groups referred to by the above terms are described by J. W. Barton, "Protective Groups In Organic Chemistry", J. G. W. McOmie, Ed., Plenum Press, New York, N.Y., 1973, and T. W. Greene, "Protective Groups in Organic Synthesis", John Wiley and Sons, New York, N.Y., 1981. The related term "protected hydroxyl" or "protected alcohol" defines a hydroxyl group substituted with a hydroxyl - protecting group as discussed above.

The term "carboxyl protecting group" as used herein refers to substituents of the carboxyl group commonly employed to block or protect the -OH functionality while reacting other functional groups on the compound. Examples of such alcohol -protecting groups include the 2-tetrahydropyranyl group, 2-ethoxyethyl group, the trityl group, the allyl group, the trimethylsilylethoxymethyl group, the 2,2,2-trichloroethyl group, the benzyl group, and the trialkylsilyl group, examples of such being trimethylsilyl, tert-butyldimethylsilyl, phenyldimethylsilyl, triiospropylsilyl and thexyldimethylsilyl. The choice of carboxyl protecting group employed is not critical so long as the derivatized alcohol group is stable to the condition of subsequent reaction(s) on other positions of the compound of the formulae and can be removed at the desired point without disrupting the remainder of the molecule. Further examples of groups referred to by the above terms are described by J. W. Barton, "Protective Groups In Organic Chemistry", J. G. W. McOmie, Ed., Plenum Press, New York, N.Y., 1973, and T. W. Greene, "Protective Groups in Organic Synthesis", John Wiley and Sons, New York, N.Y., 1981. The related term "protected carboxyl" defines a carboxyl group substituted with a carboxyl -protecting group as discussed above.

The general procedures used in the methods of the present invention are described below.

General Experimental

LC-MS data was obtained using gradient elution on a Waters 600 controller equipped with a 2487 dual wavelength detector and a Leap Technologies HTS PAL Autosampler using an YMC Combiscreen ODS-A 50x4.6 mm column. A three minute gradient was run from 25% B (97.5%acetonitrile, 2.5% water, 0.05% TFA) and 75% A (97.5% water, 2.5% acetonitrile, 0.05% TFA) to 100% B. The mass spectrometer used was a Micromass ZMD instrument. All data was obtained in the positive mode unless otherwise noted. ^{1}H NMR data was obtained on a Varian 400 MHz spectrometer.

Abbreviations used in the Examples are as follows:

APCI = atmospheric pressure chemical ionization
BOC = tert-butoxycarbonyl
BOP= (1-benzotriazolyloxy)tris(dimethylamino)phosphonium hexafluorophosphate
d = day
DIAD = diisopropyl azodicarboxylate
DCC = dicyclohexylcarbodiimide
DCM = dichloromethane
DIC = diisopropylcarbodiimide
DIEA = diisopropylethylamine
DMA = N, N-dimethylacetamide
DMAP = dimethylaminopyridine
DME = 1,2 dimethoxyethane
DMF = N, N-dimethylformamide
DMPU = 1,3-dimethypropylene urea
DMSO = dimethylsulfoxide
EDC =1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide hydrochloride
EDTA = ethylenediamine tetraacetic acid
ELISA = enzyme - linked immunosorbent assay
ESI = electrospray ionization
ether = diethyl ether
EtOAc = ethyl acetate
FBS = fetal bovine serum
g = gram
h = hour
HBTU= O-benzotriazol-1-yl-N,N,N',N'-tetramethyluronium hexafluorophosphate
HMPA= hexamethylphosphoric triamide
HOBt =1-hydroxybenzotriazole

Hz = hertz
i.v. = intravenous
kD = kiloDalton
L = liter
LAH = lithium aluminum hydride
LDA = lithium diisopropylamide
LPS = lipopolysaccharide
M = molar
m/z = mass to charge ratio
mbar = millibar
MeOH = methanol
mg = milligram
min = minute
mL = milliliter
mM = millimolar
mmol = millimole
mol = mole
mp = melting point
MS = mass spectrometry
N = normal
NMM = N-methylmorpholine, 4-methylmorpholine
NMR = nuclear magnetic resonance spectroscopy
p.o. = per oral
PBS = phosphate buffered saline solution
PMA = phorbol myristate acetate
ppm = parts per million
psi = pounds per square inch
R_f = relative TLC mobility
rt = room temperature
s.c. = subcutaneous
SPA = scintillation proximity assay
TEA = triethylamine
TFA = trifluoroacetic acid
THF = tetrahydrofuran
THP = tetrahydropyranyl
TLC = thin layer chromatography
TMSBr= bromotrimethylsilane, trimethylsilylbromide

T_r = retention time

Insert new experimental

General procedure A: Imidazole formation

To a mixture of a carboxylic acid (1 eq) and an aromatic acyl bromide (2 eq) in anhydrous DMF (0.1-0.5 M) was added DIEA (3 eq). The reaction mixture was stirred at room temperature under nitrogen for 6 to 8 hours. After that, it was poured into water, acidified with 10% citric acid and extracted with ethyl acetate. The organic extract was washed with water and brine, dried over Na_2SO_4. After evaporation of the solvent, the pale-brown residue was recrystallized from EtOAc-Hexanes, dried and used directly in the next step.

The intermediate obtained above was dissolved in glacial acetic acid (0.1-0.5 M), and ammonium acetate (20 eq) was added. The mixture was then heated at 120 °C under nitrogen for 8 to 10 hours. At completion, it was poured into water, neutralized with saturated sodium bicarbonate and extracted with ethyl acetate. The organic extract was washed with water and brine, and dried over Na_2SO_4. After removal of the solvent *in vacuo*, the residue was purified by flash column chromatography to afford the desired product.

General procedure B: Boronic acid coupling

To a solution of the bromo compound (1 eq) in a 2:1 mixture of toluene and ethanol (0.1-0.5 M) was added the appropriate boronic acid (1.2 eq) and a catalytic amount of tetrakis(triphenylphosphine)palladium(0) (0.05 eq), followed by 2 M sodium carbonate solution in water (30 eq). The reaction mixture was stirred at 90 °C under nitrogen for 6 hours. After cooling, the reaction mixture was diluted with water and extracted with ethyl acetate. The organic extract was washed with water and brine, and dried over Na_2SO_4. After removal of the solvent *in vacuo*, the residue was purified by flash column chromatography to afford the desired compound.

General procedure C: Dealkylation

To the solution of alkyl phenolic ether (1 eq) in anhydrous DCM (0.1-0.5 M) at –20° C was added dropwise BBr_3 (2 eq, solution in anhydrous DCM). The solution was warmed to room temperature over 30 minutes, and the reaction mixture quenched with ice water. The reaction mixture was then diluted with water/EtOAc and the layers were separated. The aqueous layer was further extracted with EtOAc, and the organic layers combined, washed with water and brine, and dried over Na_2SO_4. The solvent was removed *in vacuo,* and the residue subjected to silica gel chromatography to yield the final product.

General procedure D: Hydrogenation of double bond

To 1 equivalent of the desired alkene suspension in ethyl acetate (0.1-0.5 M) was added a catalytic amount of platinum(IV) oxide (wet). After degassing and introducing of nitrogen and degassing again, hydrogen was introduced through a hydrogen balloon. The reaction mixture was stirred at room temperature for 0.5 hour. The reaction mixture was then filtered through celite, the celite cake was washed three times with ethyl acetate, and the filtrates combined. The solvent was then removed *in vacuo,* and the residue was purified by silica gel chromatography to afford the desired compound.

General procedure E: Alkylation of imidazole nitrogen or phenolic oxygen

To a solution of imidazole or phenol (1 eq) in anhydrous DMF (0.1-0.5 M) was added an alkyl or aryl halide (2 eq) followed by freshly ground K_2CO_3 (4 eq). The reaction mixture was heated at 100 °C under nitrogen for 2 hours. The mixture was then diluted with water/EtOAc and the layers separated. The aqueous layer was further extracted with EtOAc, and the organic layers combined and dried over Na_2SO_4. The solvent was removed *in vacuo* and the residue was purified by silica gel chromatography to yield the final product.

General procedure F: Hydrolysis of ester

The ester (1 eq) was suspended in a mixture of MeOH:THF:H_2O (1:1:1 ; 0.1-0.2 M). LiOH (10-15 eq) was added and the mixture stirred at 40 °C for 3 hours. The solution was acidified with 10% citric acid solution, and extracted with ethyl acetate. The organic extracts were combined, washed with brine, dried over Na_2SO_4, and the solvent removed *in vacuo.* The residue was purified by silica gel chromatography to yield the final compound.

General procedure G: Coupling of carboxylic acid and amine

To a solution of carboxylic acid (1.1 eq) in DMF (0.1-0.5 M), HBTU (1.1 eq) was added followed by DIEA (1.2 eq) and the appropriate protected amine (1 eq.). The reaction mixture was then stirred at room temperature for 4 hours. At completion, the reaction mixture was diluted with water/EtOAc, acidified with 10% citric acid, and the layers were separated. The combined organic layer was washed with water, saturated $NaHCO_3$ and brine, dried over Na_2SO_4 and filtered. The filtrate was concentrated and purified by silica gel chromatography to afford the amide derivative.

General procedure H: Sonogashira coupling

To a solution of aryl bromide or aryl iodide (1 eq) in anhydrous DMF (0.1-0.5 M) was added the appropriate terminal acetylene (1.2 eq) followed by tetrakis (triphenylphosphine)palladium(0) (0.05 eq), CuI (0.1 eq), and DIEA (2 eq). The reaction mixture was then heated at 120 °C under nitrogen for 6-8 hours. At completion, the reaction mixture was diluted with water/EtOAc, acidified with 10% citric acid, and the layers

separated. The combined organic layers was washed with water and brine, dried over Na_2SO_4 and filtered. The filtrate was concentrated and purified by silica gel chromatography to afford the acetylene derivative.

General procedure I: Diaryl ether formation using aryl fluoride

To a solution of phenol compound (1 eq) in anhydrous DMF (0.1-0.5 M), the appropriate activated aryl fluoride (1.5 eq) was added followed by Cs_2CO_3 (3 eq). The reaction mixture was then heated at 120 °C under nitrogen for 2 hours. At completion, the reaction mixture was diluted with water/EtOAc and the layers separated. The aqueous layer was reextracted with EtOAc and the organic layers combined, washed with water and brine. The organic phase was then dried over Na_2SO_4, filtered, and the filtrate was concentrated and purified by silica gel chromatography to afford the diaryl ether derivative.

General procedure J: Ullmann diaryl ether coupling

To a solution of phenol compound (1 eq) in anhydrous NMP (0.1-0.5 M), the appropriate aryl bromide or iodide (1.5 eq) was added followed by CuCl (0.2 eq), 2,2,6,6-tetramethyl-3,5-heptanedione (0.2 eq) and Cs_2CO_3 (3 eq). The reaction mixture was then heated at 120 °C under nitrogen for 6 to 8 hours. At completion, the reaction mixture was diluted with water/EtOAc and the layers separated. The aqueous layer was reextracted with EtOAc and the organic layers combined, washed with water and brine. The organic phase was then dried over Na_2SO_4, filtered, and the filtrate was concentrated and purified by silica gel chromatography to afford the diaryl ether derivative.

General procedure K: Reduction of aryl nitro group

To a suspension of aryl nitro compound (1 eq) in HOAc (0.1-0.5 M), iron powder (-325 mesh, 4 eq) was added and the mixture was then heated at 120°C under nitrogen for 3 to 4 hours. At completion, the reaction mixture was diluted with water/EtOAc and the leftover iron powder was filtered and washed with EtOAc. The combined organic layer was washed with water, saturated $NaHCO_3$ and brine. The organic phase was then dried over Na_2SO_4, filtered, and the filtrate was concentrated and purified by silica gel chromatography to afford the aniline derivative.

General procedure L: Coupling of aniline with sulfonyl chloride or sulfonic anhydride

To a suspension of aniline compound (1 eq) in anhydrous DCM (0.1-0.5 M) at 0°C was added DIEA (1.2 eq) followed by the appropriate sulfonyl chloride or sulfonic anhydride (1.1 eq, diluted in anhydrous DCM). The reaction mixture was then warmed up and stirred at room temperature under nitrogen for 3 to 4 hours. At completion, the reaction mixture was diluted with water/EtOAc and the layers separated. The aqueous layer was reextracted with EtOAc and the organic layers combined, washed with 10% citric acid, water and brine.

The organic phase was then dried over Na_2SO_4, filtered, and the filtrate was concentrated and purified by silica gel chromatography to afford the sulfonamide derivative.

General procedure M: Formation of tetrazole

To a solution of phenol compound (1 eq) in anhydrous DMF (0.1-0.5 M) was added an appropriate bromoalkylnitrile (2 eq) followed by freshly ground K_2CO_3 (4 eq). The reaction mixture was heated at 100°C under nitrogen for 2 hours. The mixture was then diluted with water/EtOAc and the layers separated. The aqueous layer was further extracted with EtOAc, and the organic layers combined and dried over Na_2SO_4. The solvent was removed *in.vacuo* and the residue purified by silica gel chromatography to yield the nitrile intermediate.

The nitrile intermediate (1 eq) obtained above was dissolved in anhydrous DMF (0.1-0.5 M) and sodium azide (10 eq) and ammonium chloride (10 eq) were added. The reaction mixture was heated at 120°C under nitrogen for 8 to 10 hours. At completion, the reaction mixture was diluted with water/EtOAc and the layers separated. The aqueous layer was further extracted with EtOAc, and the organic layers combined and dried over Na_2SO_4. The solvent was removed *in vacuo* and the residue was purified by silica gel chromatography to afford the final product.

General procedure N: Protection of imidazole nitrogen

1 equivalent of an imidazole was suspended in anhydrous THF (0.1-0.5 M), to which was added 1.4 equivalents of TEA and 1.5 equivalents of di-*tert*-butyl-dicarbonate. The mixture was stirred for 2 hours and diluted with water and the layers were separated. The aqueous layer was further extracted with EtOAc, the organic layers combined, washed with brine, and the organic layer dried over sodium sulfate. The solvent was removed *in vacuo*, and the crude product purified by flash chromatography on silica gel to give the final product.

General procedure O: Removal of the *t*-butyl carbamate group

The protected compound was stirred in 4N HCl/dioxane for 1 hour. The solvent removed, and the product triturated several times with ether to afford the desired compound.

General procedure P: Alkylation.

To a solution of imidazole or phenol (1 eq) in anhydrous DMF (0.1-0.5M) was added 1-2 eq sodium hydride, either solid or as a suspension in DMF or THF. The mixture was stirred at room temperature for 20 min and a solution of alkyl or aryl halide (1-3 eq) was added in DMF or THF. Stirring continued for 1 hour, then the mixture was diluted with water/EtOAc and neutralized with 10% aqueous citric acid. The organic layer was washed with brine, dried over Na_2SO_4, and evaporated *in vacuo*. The residue was purified by silica gel chromatography to provide the final product.

General procedure Q: Benzimidazole formation

To a solution of an aldehyde (1 eq) in ethanol (0.1-0.5 M) was added 1.5 eq of a benzenediamine. The mixture was sealed in a heavy walled glass tube with stir bar and stirred at 100°C for 2 hours to overnight. The mixture was then evaporated and taken up in water/EtOAc and layers were separated. The aqueous layer was further extracted with EtOAc and the combined organic extracts were washed with brine, dried over Na_2SO_4, and evaporated *in vacuo*. The residue was purified by silica gel chromatography to give the product.

General procedure R: Catalytic reduction of aryl nitro group

To a solution of aryl nitro compound (1 eq) in methanol (0.1-0.5 M) was added 0.1 eq of 10% Pd/C catalyst. The flask was flushed with H_2 and stirred under H_2 pressure (balloon) overnight at room temperature. The mixture was then filtered on a celite pad and evaporated, and the residue was purified by silica gel column chromatography to provide the desired product.

General procedure S: Silyl group deprotection

To a solution of O- or N- silyl compound (1 eq) in THF (0.1-0.5 M) was added 5 eq of tetrabutylammonium fluoride as a solution in THF. The mixture was stirred at 65°C for 1-3 hours, then was evaporated to a small volume and taken up in water/EtOAc. Layers were separated and the aqueous layer was further extracted with EtOAc. The combined organic extracts were washed with brine, dried over Na_2SO_4, and evaporated *in vacuo*. The residue was purified by silica gel column chromatography to give the desired product.

General procedure T: Selective trimethylsilyl group deprotection

To a solution of trimethylsilyl compound (1 eq) in anhydrous methanol (0.1-0.5 M) was added 10 eq anhydrous K_2CO_3 under nitrogen. The mixture was stirred under nitrogen at room temperature for 3 hours, then diluted with water/EtOAc and layers were separated. The aqueous layer was further extracted with EtOAc and the combined organic layers were washed with brine, dried over Na_2SO_4 and evaporated *in vacuo*. The residue was purified by silica gel column chromatography to provide the desired product.

General Procedure U: Reductive Amination

To a solution of amine (1 eq) in 1,2-dichloroethane (0.1-0.5 M) was added an aldehyde (1.2 eq) and a catalytic amount of acetic acid. The mixture was stirred at room temperature for 30 minutes under nitrogen, then sodium triacetoxyborohydride (3 eq) was added and the mixture was allowed to stir for 12-16 hours at room temperature. The mixture was then diluted with water/EtOAc and layers were separated. The aqueous layer was extracted additionally with EtOAc and the combined organic extracts were washed with water, brine, dried over Na_2SO_4 and evaporated *in vacuo*. The residue was purified by silica gel column chromatography to provide the desired product.

General Procedure V: Saturation of Double Bond

To a suspension of double bond containing compound (1 eq) in HOAc (0.1-0.5 M) was added iron powder (-325 mesh, 10-20 eq) and the mixture was stirred and heated at 120°C for 18-24 hours. The mixture was then diluted with water/EtOAc and filtered to remove excess iron powder, then layers were separated and the aqueous layer was washed again with EtOAc. The combined organic extracts were washed with water, saturated $NaHCO_3$, and brine, then dried over Na_2SO_4. After evaporation *in vacuo*, the residue was purified by silica gel column chromatography to provide the desired product.

Example 1

4-(2,4-Dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-4-methoxycinnamic acid (178 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole (193 mg, 56% yield).

LCMS: *m/z* 345 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.82 (s, 3H), 6.88 (d, 1H), 6.95 (d, 2H), 7.33 (d, 1H), 7.51 (d, 2H), 7.52 (d, 1H), 7.54 (s, 1H), 7.66 (d, 1H), 7.93 (s, 1H) ppm.

Example 2

4-(2,4-Dichloro-phenyl)-2-[2-(3-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-3-methoxycinnamic acid (178 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(3-methoxy-phenyl)-(E)-vinyl]-1H-imidazole (176 mg, 51% yield).

LCMS: *m/z* 345 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.81 (s, 3H), 6.88 (d, 1H), 7.04 (m, 3 H), 7.32 (d, 1H), 7.41 (s, 1H), 7.50 (d, 1H), 7.54 (s, 1H), 7.67 (d, 1H), 7.92 (s, 1H) ppm.

Example 3

4-(2,4-Dichloro-phenyl)-2-[2-(2-methoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-2-methoxycinnamic acid (178 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(2-methoxy-phenyl)-(E)-vinyl]-1H-imidazole (207 mg, 60% yield).

LCMS: *m/z* 345 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.82 (s, 3H), 6.88 (d, 1H), 7.04-7.15 (m, 4H), 7.32 (d, 1H), 7.50 (d, 1H), 7.54 (s, 1H), 7.67 (d, 1H), 7.93 (s, 1H) ppm.

Example 4

4-(2,4-Dichloro-phenyl)-2-[2-(3,4-dimethoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-3,4-dimethoxycinnamic acid (208 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(3,4-dimethoxy-phenyl)-(E)-vinyl]-1H-imidazole (176 mg, 47% yield).

LCMS: *m/z* 375 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.89 (s, 3H), 3.91 (s, 3H), 7.00 (d, 1H), 7.05 (d, 1H), 7.24-7.28 (m, 2H), 7.56 (dd, 1H), 7.66 (d, 1H), 7.69 (d, 1H), 7.75 (d, 1H), 7.89 (s, 1H) ppm.

Example 5

4-(2,4-Dichloro-phenyl)-2-[2-(2,3,4-trimethoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-2,3,4-trimethoxycinnamic acid (238 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(2,3,4-trimethoxy-phenyl)-vinyl]-1H-imidazole (170 mg, 42% yield).

LCMS: *m/z* 405 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.85 (s, 3H), 3.91 (s, 3H), 3.98 (s, 3H), 6.91 (d, 1H), 7.12 (d, 1H), 7.44 (d, 1H), 7.55 (dd, 1H), 7.69 (d, 1H), 7.74 (d, 1H), 7.87 (s, 1H), 7.92 (d, 1H) ppm.

Example 6

4-(2,4-Dichloro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-1H-imidazole

Trans-4-ethoxycinnamic acid (192 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(4-ethoxy-phenyl)-(E)-vinyl]-1H-imidazole (222 mg, 64% yield).

LCMS: *m/z* 359 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 1.41 (t, 3H), 4.10 (q, 2H), 6.97 (d, 1H), 7.01 (d, 2H), 7.55 (dd, 1H), 7.63 (d, 2H), 7.68 (d, 1H), 7.69 (d, 1H), 7.74 (d, 1H), 7.88 (s, 1H) ppm.

Example 7

4-(2,4-Dichloro-phenyl)-2-styryl-1H-imidazole

Trans-cinnamic acid (148 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-styryl-1H-imidazole (202 mg, 64% yield).

LCMS: *m/z* 315 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.13 (d, 1H), 7.49 (m, 3H), 7.68-7.73 (m, 4H), 7.77 (d, 1H), 8.03 (m, 2H) ppm.

Example 8

4-(2,4-Dichloro-phenyl)-2-[2-(4-fluoro-phenyl)-(E)-vinyl]-1H-imidazole

Trans-4-fluorocinnamic acid (166 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-[2-(4-fluoro-phenyl)-(E)-vinyl]-1H-imidazole (236 mg, 71% yield).

LCMS: *m/z* 333 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.12 (d, 1H), 7.51 (d, 2H), 7.68 (d, 2H), 7.70 (m, 2H), 7.72 (d, 1H), 8.03 (m, 1H), 8.04 (s, 1H) ppm.

Example 9

2-[2-(4-Chloro-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

Trans-4-chlorocinnamic acid (182 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 2-[2-(4-chloro-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (227 mg, 65% yield).

LCMS: *m/z* 349 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.14 (d, 1H), 7.52 (d, 2H), 7.69 (d, 2H), 7.72-7.73 (m, 2H), 7.74 (d, 1H), 8.03 (m, 1H), 8.05 (s, 1H) ppm.

Example 10

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

Trans-4-bromocinnamic acid (2.27 g, 10 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 2-[2-(4-bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (2.24 g, 57% yield).

LCMS: *m/z* 394 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.14 (d, 1H), 7.51 (d, 2H), 7.69 (d, 2H), 7.71 (m, 2H), 7.74 (d, 1H), 8.02 (m, 1H), 8.04 (s, 1H) ppm.

Example 11

2-(2-Biphenyl-4-yl-(E)-vinyl)-4-(2,4-dichloro-phenyl)-1H-imidazole

Trans-4-phenylcinnamic acid (224 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 2-(2-biphenyl-4-yl-(E)-vinyl)-4-(2,4-dichloro-phenyl)-1H-imidazole (227 mg, 58% yield).

LCMS: *m/z* 391 $(M+H)^+$; ^1H NMR ($CDCl_3$, 400 MHz): δ 6.94 (d, 1H), 7.31-7.39 (m, 2H), 7.43-7.48 (m, 3H), 7.61-7.64 (m, 6H), 7.66 (s, 1H), 7.74 (d, 1H), 8.26 (d, 1H) ppm.

Example 12

4-(2,4-Dichloro-phenyl)-2-(2-naphthalen-1-yl-(E)-vinyl)-1H-imidazole

Trans-3-(1-naphthyl)acrylic acid (198 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-(2-naphthalen-1-yl-(E)-vinyl)-1H-imidazole (201 mg, 55% yield).

LCMS: *m/z* 365 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.25 (d, 1H), 7.58-7.69 (m, 4H), 7.75 (d, 1H), 7.78 (d, 1H), 7.97-8.04 (m, 4H), 8.35 (d, 1H), 8.70 (d, 1H) ppm.

Example 13

4-(2,4-Dichloro-phenyl)-2-(2-naphthalen-2-yl-(E)-vinyl)-1H-imidazole

Trans-3-(2-naphthyl) acrylic acid (198 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-(2-naphthalen-2-yl-(E)-vinyl)-1H-imidazole (248 mg, 68% yield).

LCMS: *m/z* 365 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 7.27 (d, 1H), 7.57-7.69 (m, 4H), 7.75 (d, 1H), 7.76 (d, 1H), 7.96-8.02 (m, 4H), 8.33 (d, 1H), 8.71 (d, 1H) ppm.

Example 14

4-[4-(2,4-Dichloro-phenyl)-1H-imidazol-2-yl]-5-phenyl-oxazole

5-Phenyl-1,3-oxazole-4-carboxylic acid (189 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-[4-(2,4-dichloro-phenyl)-1H-imidazol-2-yl]-5-phenyl-oxazole (135 mg, 38% yield).

LCMS: *m/z* 356 $(M+H)^+$.

Example 15

2-[2-(4-Benzyloxy-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

Trans-4-benzyloxycinnamic acid (254 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 2-[2-(4-benzyloxy-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (185 mg, 44% yield).

LCMS: *m/z* 421 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 5.16 (s, 2H), 7.48 (d, 2H), 7.51 (s, 5H), 7.61 (d, 2H), 7.65 (d, 2H), 7.69 (d, 2H), 7.74 (s, 1H), 7.81 (d, 1H) ppm.

Example 16

4-(2,4-Dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole

9-Fluorenylideneacetic acid (222 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to give 4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole (245 mg, 63% yield).

LCMS: *m/z* 389 $(M+H)^+$. ^1H NMR (CD_3OD, 400 MHz): δ 7.25 (m, 1H), 7.37-7.51 (m, 5H), 7.57 (dd, 1H), 7.73 (d, 1H), 7.77-7.82 (m, 3H), 7.93 (d, 1H), 8.08 (s, 1H) ppm.

Example 17

1-Butyl-4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole

4-(2,4-Dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole (39 mg, 0.1 mmol) was treated according to general procedure E using 1-bromobutane to give 1-butyl-4-(2,4-dichloro-phenyl)-2-fluoren-9-ylidenemethyl-1H-imidazole (35 mg, 78% yield).

LCMS: *m/z* 445 $(M+H)^+$.

Example 18

4-(2,4-Dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-oxazole

Trans-4-methoxycinnamic acid (178 mg, 1 mmol) was treated according to general procedure A using 2,4-dichlorophenacyl bromide to afford 4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-oxazole as a less polar by-product (38 mg, 11% yield) along with 4-(2,4-dichloro-phenyl)-2-[2-(4-methoxy-phenyl)-(E)-vinyl]-1H-imidazole (193 mg, 56% yield).

LCMS: *m/z* 346 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.81 (s, 3H), 6.89 (d, 1H), 6.95 (d, 2H), 7.34 (d, 1H), 7.51 (d, 2H), 7.52 (d, 1H), 7.58 (s, 1H), 7.67 (d, 1H), 7.94 (s, 1H) ppm.

Example 19

4-(2,4-Dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 4-methoxyphenylboronic acid to give 4-(2,4-dichloro-phenyl)-2-[2-(4'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole (30 mg, 72% yield).

LCMS: *m/z* 421 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.82 (s, 3H), 7.03 (d, 2H), 7.15 (d, 1H), 7.54 (dd, 1H), 7.62 (d, 2H), 7.70 (s, 1H), 7.71 (m, 5H), 7.73 (d, 1H), 7.91 (s, 1H) ppm.

Example 20

4-(2,4-Dichloro-phenyl)-2-[2-(3'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 3-methoxyphenylboronic acid to give 4-(2,4-dichloro-phenyl)-2-[2-(3'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole (28 mg, 67% yield).

LCMS: *m/z* 421 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.81 (s, 3H), 7.03 (d, 2H), 7.15 (d, 1H), 7.58-7.61 (m, 3H), 7.68-7.70 (m, 6H), 7.73 (d, 1H), 7.90 (s, 1H) ppm.

Example 21

4-(2,4-Dichloro-phenyl)-2-[2-(2'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

2-[2-(4-bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 2-methoxyphenylboronic acid to give 4-(2,4-dichloro-phenyl)-2-[2-(2'-methoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole (24 mg, 57% yield).

LCMS: *m/z* 421 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.83 (s, 3H), 7.03 (d, 2H), 7.15 (d, 1H), 7.55-7.60 (m, 3H), 7.66-7.71 (m, 6H), 7.73 (d, 1H), 7.92 (s, 1H) ppm.

Example 22

4-(2,4-Dichloro-phenyl)-2-[2-(3',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 3,4-dimethoxyphenylboronic acid to give 4-(2,4-dichloro-phenyl)-2-[2-(3',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole (24 mg, 54% yield).

LCMS: *m/z* 451 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 3.84 (s, 3H), 3.87 (s, 3H), 7.03 (d, 2H), 7.15 (d, 1H), 7.58-7.61 (m, 3H), 7.68-7.71 (m, 5H), 7.73 (d, 1H), 7.90 (s, 1H) ppm.

Example 23

4-(2,4-Dichloro-phenyl)-2-[2-(2',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 2,4-dimethoxyphenylboronic acid to give 4-(2,4-dichloro-phenyl)-2-[2-(2',4'-dimethoxy-biphenyl-4-yl)-(E)-vinyl]-1H-imidazole (22 mg, 49% yield).

LCMS: *m/z* 451 $(M+H)^+$.

Example 24

2-[2-(4'-Butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole

2-[2-(4-Bromo-phenyl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (40 mg, 0.1 mmol) was treated as described in general procedure B using 4-n-butoxyphenylboronic acid to give 2-[2-(4'-butoxy-biphenyl-4-yl)-(E)-vinyl]-4-(2,4-dichloro-phenyl)-1H-imidazole (24 mg, 52% yield).

LCMS: *m/z* 463 $(M+H)^+$; ^1H NMR (CD_3OD, 400 MHz): δ 1.15 (t, 3H), 1.43 (m, 2H), 1.84 (m, 2H), 4.18 (t, 2H), 7.03 (d, 2H), 7.15 (d, 1H), 7.54 (dd, 1H), 7.62 (d, 2H), 7.70 (s, 1H), 7.71 (m, 5H), 7.73 (d, 1H), 7.91 (s, 1H) ppm.

Example 25

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